**Course: Math 12**

**Week 1 Quiz**

Question 1. What is the general form of a quadratic equation?

a) y = ax^2 + bx + c

b) y = ax^3 + bx^2 + c

c) y = ax + b

d) y = a/x + b

Question 2. What does the 'a' in the quadratic equation y = ax^2 + bx + c represent?

a) The y-intercept

b) The slope of the line

c) The x-intercept

d) The coefficient of the square term, which determines the direction and the width of the parabola

Question 3. If a quadratic equation has a positive 'a' value, which way does the parabola open?

a) Upwards

b) Downwards

c) To the right

d) To the left

Question 4. What is the vertex of the quadratic equation y = a(x - h)^2 + k?

a) (a, k)

b) (h, a)

c) (h, k)

d) (k, h)

Question 5. How many solutions does a quadratic equation have when the discriminant ($b^2 - 4ac$) is negative?

a) 0

b) 1

c) 2

d) Infinite

Question 6. What is the x-coordinate of the vertex in the quadratic equation $y = ax^2 + bx + c$?

a) $-b/2a$

b) $-b/a$

c) $-c/a$

d) $-c/2a$

Question 7. What does the 'c' in the quadratic equation $y = ax^2 + bx + c$ represent?

a) The x-intercept

b) The y-intercept

c) The slope of the line

d) The coefficient of the square term

Question 8. What is the axis of symmetry of the quadratic equation $y = ax^2 + bx + c$?

a) $x = -b/2a$

b) $x = -b/a$

c) $x = -c/a$

d) $x = -c/2a$

Question 9. If a quadratic equation has a negative 'a' value, which way does the parabola open?

a) Upwards

b) Downwards

c) To the right

d) To the left

Question 10. How many solutions does a quadratic equation have when the discriminant (b^2 - 4ac) is equal to zero?

a) 0

b) 1

c) 2

d) Infinite

Answer Key:

1. a) y = ax^2 + bx + c
2. d) The coefficient of the square term, which determines the direction and the width of the parabola
3. a) Upwards
4. c) (h, k)
5. a) 0
6. a) -b/2a
7. b) The y-intercept
8. a) x = -b/2a
9. b) Downwards
10. b) 1

**Week 2 Quiz**

Question 1. What does f(x) = 2x + 3 represent?

a) A linear function

b) A quadratic function

c) An exponential function

d) A logarithmic function

Question 2. If g(x) = x^2 + 2x - 1, what is g(2)?

a) 3

b) 5

c) 7

d) 9

Question 3. If $h(x) = 3x - 2$, what is $h(-1)$?

a) -1

b) -3

c) -5

d) -7

Question 4. What does the notation $f(g(x))$ mean?

a) The product of $f(x)$ and $g(x)$

b) The sum of $f(x)$ and $g(x)$

c) The composition of $f(x)$ and $g(x)$, where $g(x)$ is plugged into $f(x)$

d) The composition of $f(x)$ and $g(x)$, where $f(x)$ is plugged into $g(x)$

Question 5. If $f(x) = 2x + 1$ and $g(x) = x^2$, what is $f(g(2))$?

a) 9

b) 10

c) 11

d) 12

Question 6. If $f(x) = x^2$ and $g(x) = 2x + 1$, what is $g(f(2))$?

a) 9

b) 10

c) 11

d) 12

Question 7. What does the notation $f^{-1}(x)$ typically represent?

a) The reciprocal of $f(x)$

b) The square root of $f(x)$

c) The inverse of $f(x)$

d) The square of $f(x)$

Question 8. If $f(x) = 2x + 3$, what is $f^{-1}(x)$?

a) $(x - 3) / 2$

b) $(x + 3) / 2$

c) 2x - 3
d) -2x + 3

Question 9. If f(x) = x^2 (for x >= 0), what is f^-1(x)?
a) sqrt(x)
b) x^2
c) -sqrt(x)
d) -x^2

Question 10. If g(x) = 3x - 2, what is g^-1(x)?
a) (x + 2) / 3
b) (x - 2) / 3
c) 3x + 2
d) -3x + 2

Answer Key:

1. a) A linear function
2. c) 7
3. c) -5
4. c) The composition of f(x) and g(x), where g(x) is plugged into f(x)
5. c) 11
6. a) 9
7. c) The inverse of f(x)
8. a) (x - 3) / 2
9. a) sqrt(x)
10. a) (x + 2) / 3

**Week 3 Quiz**

Question 1. What is a sequence in mathematics?
a) A set of numbers
b) A list of numbers in a specific order
c) A type of function

d) A type of equation

Question 2. What does it mean for a sequence to converge?

a) The sequence approaches a certain number as it progresses

b) The sequence becomes increasingly larger

c) The sequence becomes increasingly smaller

d) The sequence repeats a certain pattern

Question 3. What does it mean for a sequence to diverge?

a) The sequence approaches a certain number as it progresses

b) The sequence becomes increasingly larger or smaller without bound

c) The sequence becomes increasingly smaller

d) The sequence repeats a certain pattern

Question 4. What is the limit of the sequence defined by a_n = 1/n as n approaches infinity?

a) 0

b) 1

c) Infinity

d) Undefined

Question 5. What is the limit of the sequence defined by a_n = n as n approaches infinity?

a) 0

b) 1

c) Infinity

d) Undefined

Question 6. Is the sequence defined by a_n = (-1)^n convergent or divergent?

a) Convergent

b) Divergent

c) Neither

d) Both

Question 7. Is the sequence defined by $a_n = n^2$ convergent or divergent?

a) Convergent

b) Divergent

c) Neither

d) Both

Question 8. What is the limit of the sequence defined by $a_n = 1/n^2$ as n approaches infinity?

a) 0

b) 1

c) Infinity

d) Undefined

Question 9. What is the limit of the sequence defined by $a_n = n^2$ as n approaches infinity?

a) 0

b) 1

c) Infinity

d) Undefined

Question 10. Is the sequence defined by $a_n = 1/2^n$ convergent or divergent?

a) Convergent

b) Divergent

c) Neither

d) Both

Answer Key:

1. b) A list of numbers in a specific order

2. a) The sequence approaches a certain number as it progresses

3. b) The sequence becomes increasingly larger or smaller without bound

4. a) 0

5. c) Infinity
6. b) Divergent
7. b) Divergent
8. a) 0
9. c) Infinity
10. a) Convergent

**Week 4 Quiz**

Question 1. What is a recursive formula?

a) A formula that expresses the elements of a sequence as a function of their position

b) A formula that expresses the elements of a sequence as a function of the previous elements

c) A formula that expresses the elements of a sequence as a function of the next elements

d) A formula that expresses the elements of a sequence as a function of the first element

Question 2. What is the recursive formula for an arithmetic sequence with a common difference of d?

a) a_n = a_(n-1) + d

b) a_n = a_(n-1) * d

c) a_n = a_(n-1) / d

d) a_n = a_(n-1) – d

Question 3. What is the recursive formula for a geometric sequence with a common ratio of r?

a) a_n = a_(n-1) + r

b) a_n = a_(n-1) * r

c) a_n = a_(n-1) / r

d) a_n = a_(n-1) – r

Question 4. If a sequence is defined by the recursive formula a_n = a_(n-1) + 3 with a_1 = 2, what is a_3?

a) 5

b) 6

c) 8

d) 9

Question 5. If a sequence is defined by the recursive formula a_n = a_(n-1) * 2 with a_1 = 1, what is a_4?

a) 4

b) 6

c) 8

d) 16

Question 6. What is the first term in a recursive formula usually denoted as?

a) a_0

b) a_1

c) a_n

d) a_(n-1)

Question 7. If a sequence is defined by the recursive formula a_n = a_(n-1) + 5 with a_1 = 3, what is a_5?

a) 20

b) 23

c) 25

d) 28

Question 8. If a sequence is defined by the recursive formula a_n = a_(n-1) * 3 with a_1 = 2, what is a_3?

a) 6

b) 9

c) 12

d) 18

Question 9. What is the recursive formula for a sequence where each term is 5 less than the previous term?

a) a_n = a_(n-1) + 5

b) a_n = a_(n-1) * 5

c) a_n = a_(n-1) / 5

d) a_n = a_(n-1) – 5

Question 10. What is the recursive formula for a sequence where each term is twice the previous term?

a) a_n = a_(n-1) + 2

b) a_n = a_(n-1) * 2

c) a_n = a_(n-1) / 2

d) a_n = a_(n-1) – 2

Answer Key:

1. b) A formula that expresses the elements of a sequence as a function of the previous elements
2. a) a_n = a_(n-1) + d
3. b) a_n = a_(n-1) * r
4. c) 8
5. d) 16
6. b) a_1
7. b) 23
8. d) 18
9. d) a_n = a_(n-1) - 5
10. b) a_n = a_(n-1) * 2

**Week 5 Quiz**

Question 1. What is the average rate of change of a function between two points (x1, y1) and (x2, y2)?
a) (y2 - y1) / (x2 - x1)
b) (y2 + y1) / (x2 - x1)
c) (y2 - y1) / (x2 + x1)
d) (y2 + y1) / (x2 + x1)

Question 2. What does the average rate of change of a function represent?

a) The slope of the secant line between two points on the function
b) The slope of the tangent line at a point on the function
c) The y-intercept of the function
d) The x-intercept of the function

Question 3. If f(x) = 2x + 3, what is the average rate of change of the function from x = 2 to x = 5?
a) 2
b) 3
c) 5
d) 8

Question 4. For a linear function, how does the average rate of change vary between any two points?
a) It is always different
b) It depends on the x-values chosen
c) It is always the same
d) It depends on the y-values chosen

Question 5. If f(x) = x^2, what is the average rate of change of the function from x = 3 to x = 4?
a) 1
b) 3
c) 7
d) 9

Question 6. For a quadratic function f(x) = x^2, is the average rate of change constant for different intervals?
a) Yes
b) No
c) It depends on the x-values chosen
d) It depends on the y-values chosen

Question 7. If f(x) = 4x - 1, what is the average rate of change of the function from x = 1 to x = 3?
a) 2
b) 3
c) 4
d) 8

Question 8. For a constant function f(x) = c, what is the average rate of change between any two points?
a) 0
b) 1
c) It depends on the x-values chosen
d) It depends on the y-values chosen

Question 9. If f(x) = 3x^2 + 2x + 1, what is the average rate of change of the function from x = 1 to x = 2?
a) 5
b) 7
c) 9
d) 11

Question 10. The average rate of change of a function is similar to:
a) Distance
b) Speed
c) Time
d) Acceleration

**Answer Key:**

1. a) (y2 - y1) / (x2 - x1)
2. a) The slope of the secant line between two points on the function
3. a) 2
4. c) It is always the same
5. c) 7
6. b) No
7. c) 4
8. a) 0
9. d) 11
10. b) Speed

**Week 6 Quiz**

Question 1. What is the domain of a function?
a) The set of all output values
b) The set of all input values
c) The set of all x-intercepts
d) The set of all y-intercepts

Question 2. What is the domain of the function f(x) = x^2?
a) All real numbers
b) All positive real numbers
c) All negative real numbers
d) The number zero

Question 3. What is the domain of the function f(x) = sqrt(x)?
a) All real numbers
b) All positive real numbers and zero
c) All negative real numbers
d) The number zero

Question 4. Which function will have a restricted domain due to the denominator of a fraction?
a) f(x) = x^2
b) f(x) = 1/x
c) f(x) = sqrt(x)
d) f(x) = x + 2

Question 5. What is the domain of the function f(x) = 1/(x - 3)?
a) All real numbers except 3
b) All real numbers
c) All real numbers except -3
d) Only the number 3

Question 6. For the function f(x) = ln(x), what is the domain?
a) All real numbers
b) All positive real numbers
c) All positive real numbers and zero
d) All real numbers except zero

Question 7. What is the domain of a polynomial function?
a) All real numbers
b) All positive real numbers
c) All negative real numbers
d) Depends on the degree of the polynomial

Question 8. For the function f(x) = 1/sqrt(x-5), what is the domain?
a) All real numbers less than 5
b) All real numbers greater than 5
c) All real numbers
d) All real numbers except 5

Question 9. What is the domain of the function f(x) = 1/(x^2 - 4)?
a) All real numbers
b) All real numbers except 2 and -2
c) All real numbers except 4
d) Only real numbers between -2 and 2

Question 10. What is the domain of the function f(x) = sqrt(x+4)?
a) All real numbers greater than -4
b) All real numbers less than -4
c) All real numbers
d) All real numbers except -4

Answer Key:

1. b) The set of all input values

2. a) All real numbers
3. b) All positive real numbers and zero
4. b) f(x) = 1/x
5. a) All real numbers except 3
6. b) All positive real numbers
7. a) All real numbers
8. b) All real numbers greater than 5
9. b) All real numbers except 2 and -2
10. a) All real numbers greater than -4

**Week 7 Quiz**

Question 1. What is the basic shape of the graph of a cube root function?
a) Parabola
b) Circle
c) Straight line
d) A curve that passes through the origin and the quadrants I and III

Question 2. For the function f(x) = cube root(x), what is the x-coordinate of the point where the function intersects the y-axis?
a) -1
b) 0
c) 1
d) Undefined

Question 3. For the function f(x) = cube root(x), what is the y-coordinate of the point where the function intersects the x-axis?
a) -1
b) 0
c) 1
d) Undefined

Question 4. For the function f(x) = cube root(x), what is the end behavior as x approaches negative infinity?
a) f(x) approaches negative infinity
b) f(x) approaches zero
c) f(x) approaches positive infinity
d) f(x) is undefined

Question 5. What is the transformation of the function f(x) = cube root(x-3)?
a) Shift 3 units to the right
b) Shift 3 units to the left
c) Shift 3 units up
d) Shift 3 units down

Question 6. What is the transformation of the function f(x) = cube root(x) + 4?

a) Shift 4 units to the right
b) Shift 4 units to the left
c) Shift 4 units up
d) Shift 4 units down

Question 7. What is the transformation of the function f(x) = 2*cube root(x)?
a) Stretch by a factor of 2 vertically
b) Compress by a factor of 2 vertically
c) Stretch by a factor of 2 horizontally
d) Compress by a factor of 2 horizontally

Question 8. What is the transformation of the function f(x) = cube root(-x)?
a) Reflection across the y-axis
b) Reflection across the x-axis
c) Shift to the right
d) Shift to the left

Question 9. How does the function f(x) = cube root(x) behave for large positive x values?
a) Approaches positive infinity
b) Approaches zero
c) Approaches negative infinity
d) Becomes undefined

Question 10. How does the function f(x) = cube root(x) behave for large negative x values?
a) Approaches positive infinity
b) Approaches zero
c) Approaches negative infinity
d) Becomes undefined

Answer Key:

1. d) A curve that passes through the origin and the quadrants I and III
2. b) 0
3. b) 0
4. a) f(x) approaches negative infinity
5. a) Shift 3 units to the right
6. c) Shift 4 units up
7. a) Stretch by a factor of 2 vertically
8. a) Reflection across the y-axis
9. a) Approaches positive infinity
10. c) Approaches negative infinity

**Week 8 Quiz**

**Question 1.** What is the base of the logarithm in the expression log(x)?
a. 10
b. e
c. 1
d. x

**Question 2.** What is the value of log10(100)?
a. 2
b. 10
c. 100
d. 1000

**Question 3.** If logb(a) = c, then which of the following is true?
a. b^c = a
b. a^c = b
c. a^b = c
d. c^b = a

**Question 4.** What is the inverse function of y = logb(x)?
a. y = b^x
b. y = x^b
c. y = b/x
d. y = x/b

**Question 5.** What is the value of logb(b)?
a. 0
b. 1
c. b
d. Undefined

**Question 6.** What is the domain of the function y = logb(x)?
a. x > 0
b. x >= 0
c. All real numbers
d. x < 0

**Question 7.** If logb(a) = m and logb(c) = n, what is logb(ac)?
a. m + n
b. m - n
c. m * n
d. m / n

**Question 8.** What is the value of logb(1) for any positive base b?

a. 0
b. 1
c. b
d. Undefined

**Question 9.** If logb(a) = m and logb(c) = n, what is logb(a/c)?
a. m + n
b. m - n
c. m * n
d. m / n

**Question 10.** If logb(a) = m and logb(c) = n, what is logb(a^n)?
a. m + n
b. m - n
c. m * n
d. m / n

**Answer Key**

1. a. 10
2. a. 2
3. a. b^c = a
4. a. y = b^x
5. b. 1
6. a. x > 0
7. a. m + n
8. a. 0
9. b. m - n
10. c. m * n

**Week 9 Quiz**

**Question 1.** What is the general form of a quadratic equation?
a. ax^2 + bx + c = 0
b. ax^3 + bx + c = 0
c. ax^2 + bx = 0
d. ax + b = 0

**Question 2.** What is the quadratic formula used to solve ax^2 + bx + c = 0?
a. x = (-b +- sqrt(b^2 - 4ac)) / (2a)
b. x = (-b +- sqrt(b^2 + 4ac)) / (2a)
c. x = (-b +- sqrt(b^2 - 4ac)) / a
d. x = (-b +- sqrt(b^2 + 4ac)) / 2

**Question 3.** What is the discriminant in a quadratic equation?
a. b^2 - 4ac
b. b^2 + 4ac

c. sqrt(b^2 - 4ac)
d. sqrt(b^2 + 4ac)

**Question 4.** What does it mean if the discriminant is greater than 0?
a. The quadratic equation has two real solutions
b. The quadratic equation has one real solution
c. The quadratic equation has no real solutions
d. The quadratic equation has infinite solutions

**Question 5.** What does it mean if the discriminant is equal to 0?
a. The quadratic equation has two real solutions
b. The quadratic equation has one real solution
c. The quadratic equation has no real solutions
d. The quadratic equation has infinite solutions

**Question 6.** What does it mean if the discriminant is less than 0?
a. The quadratic equation has two real solutions
b. The quadratic equation has one real solution
c. The quadratic equation has no real solutions
d. The quadratic equation has infinite solutions

**Question 7.** What is the solution to the quadratic equation x^2 - 6x + 9 = 0?
a. x = 3
b. x = -3
c. x = 3, -3
d. No solution

**Question 8.** What is the solution to the quadratic equation x^2 + 4x + 4 = 0?
a. x = 2
b. x = -2
c. x = 2, -2
d. No solution

**Question 9.** What is the solution to the quadratic equation x^2 + 2x + 1 = 0?
a. x = 1
b. x = -1
c. x = 1, -1
d. No solution

**Question 10.** What is the solution to the quadratic equation x^2 + x + 1 = 0?
a. x = 1
b. x = -1
c. x = 1, -1
d. No real solution

**Answer Key**

1. a. $ax^2 + bx + c = 0$
2. a. $x = (-b \pm \sqrt{b^2 - 4ac}) / (2a)$
3. a. $b^2 - 4ac$
4. a. The quadratic equation has two real solutions
5. **b. The quadratic equation has one real solution**
6. c. The quadratic equation has no real solutions
7. a. $x = 3$
8. b. $x = -2$
9. b. $x = -1$
10. d. No real solution

**Week 10**

**Question 1.** What is the first step in factoring a quadratic equation?
a. Find the roots
b. Set the equation to zero
c. Divide by the coefficient of $x^2$
d. Square the equation

**Question 2.** What is the factored form of the equation $x^2 - 5x + 6 = 0$?
a. $(x - 2)(x - 3) = 0$
b. $(x - 2)(x + 3) = 0$
c. $(x + 2)(x - 3) = 0$
d. $(x + 2)(x + 3) = 0$

**Question 3.** What are the solutions to the equation $(x - 2)(x - 3) = 0$?
a. $x = 2, 3$
b. $x = -2, -3$
c. $x = 2, -3$
d. $x = -2, 3$

**Question 4.** What is the factored form of the equation $x^2 - 7x + 10 = 0$?
a. $(x - 2)(x - 5) = 0$
b. $(x - 2)(x + 5) = 0$
c. $(x + 2)(x - 5) = 0$
d. $(x + 2)(x + 5) = 0$

**Question 5.** What are the solutions to the equation $(x - 2)(x - 5) = 0$?
a. $x = 2, 5$
b. $x = -2, -5$
c. $x = 2, -5$
d. $x = -2, 5$

**Question 6.** What is the factored form of the equation $x^2 - 3x - 10 = 0$?

a. (x - 5)(x + 2) = 0
b. (x + 5)(x - 2) = 0
c. (x - 5)(x - 2) = 0
d. (x + 5)(x + 2) = 0

**Question 7.** What are the solutions to the equation (x - 5)(x + 2) = 0?
a. x = 5, -2
b. x = -5, 2
c. x = 5, 2
d. x = -5, -2

**Question 8.** What is the factored form of the equation x^2 + 4x - 21 = 0?
a. (x - 3)(x + 7) = 0
b. (x + 3)(x - 7) = 0
c. (x - 3)(x - 7) = 0
d. (x + 3)(x + 7) = 0

**Question 9.** What are the solutions to the equation (x - 3)(x + 7) = 0?
a. x = 3, -7
b. x = -3, 7
c. x = 3, 7
d. x = -3, -7

**Question 10.** What is the factored form of the equation x^2 - 4 = 0?
a. (x - 2)(x + 2) = 0
b. (x + 2)(x - 2) = 0
c. (x - 2)(x - 2) = 0
d. (x + 2)(x + 2) = 0

**Answer Key**

1. b. Set the equation to zero
2. a. (x - 2)(x - 3) = 0
3. a. x = 2, 3
4. a. (x - 2)(x - 5) = 0
5. a. x = 2, 5
6. a. (x - 5)(x + 2) = 0
7. a. x = 5, -2
8. b. (x + 3)(x - 7) = 0
9. b. x = -3, 7
10. a. (x - 2)(x + 2) = 0

**Week 11**

**Question 1.** What is the shape of the graph of a quadratic equation?

a. Circle
b. Ellipse
c. Parabola
d. Hyperbola

**Question 2.** What does the term "vertex" refer to in the context of a quadratic equation?
a. The highest or lowest point on the graph
b. The point where the graph crosses the x-axis
c. The point where the graph crosses the y-axis
d. The point where the graph changes direction

**Question 3.** If the coefficient of the x^2 term in a quadratic equation is positive, which way does the parabola open?
a. Upwards
b. Downwards
c. Leftwards
d. Rightwards

**Question 4.** If the coefficient of the x^2 term in a quadratic equation is negative, which way does the parabola open?
a. Upwards
b. Downwards
c. Leftwards
d. Rightwards

**Question 5.** What does the term "axis of symmetry" refer to in the context of a quadratic equation?
a. The line that divides the parabola into two equal halves
b. The line that the parabola is tangent to at its vertex
c. The line that the parabola crosses at its x-intercepts
d. The line that the parabola crosses at its y-intercepts

**Question 6.** What is the formula for the axis of symmetry of a quadratic equation in the form y = ax^2 + bx + c?
a. x = -b/2a
b. x = -b/a
c. x = -2b/a
d. x = b/2a

**Question 7.** What is the vertex form of a quadratic equation?
a. y = a(x - h)^2 + k
b. y = a(x + h)^2 + k
c. y = a(x - h)^2 - k
d. y = a(x + h)^2 – k

**Question 8.** In the vertex form of a quadratic equation y = a(x - h)^2 + k, what does (h, k) represent?
a. The x-intercepts of the graph
b. The y-intercepts of the graph
c. The vertex of the graph
d. The focus of the graph

**Question 9.** What does the term "discriminant" refer to in the context of a quadratic equation?
a. The value that determines the number of x-intercepts
b. The value that determines the y-intercept
c. The value that determines the vertex
d. The value that determines the axis of symmetry

**Question 10.** If the discriminant of a quadratic equation is greater than 0, how many x-intercepts does the graph have?
a. 0
b. 1
c. 2
d. Infinite

**Answer Key**

1. c. Parabola
2. a. The highest or lowest point on the graph
3. a. Upwards
4. b. Downwards
5. a. The line that divides the parabola into two equal halves
6. a. x = -b/2a
7. a. y = a(x - h)^2 + k
8. c. The vertex of the graph
9. a. The value that determines the number of x-intercepts
10. c. 2

**Week 12**

**Question 1.** What is a function rule in mathematics?
a. A rule that describes how to transform one set of numbers into another
b. A rule that describes how to add two numbers
c. A rule that describes how to multiply two numbers
d. A rule that describes how to divide two numbers

**Question 2.** If a function rule is defined as y = 2x + 3, what is the value of y when x = 2?
a. 4
b. 5

c. 7
d. 8

**Question 3.** If a function rule is defined as $y = 3x - 2$, what is the value of y when $x = 4$?
a. 10
b. 11
c. 12
d. 13

**Question 4.** If a function rule is defined as y = x^2, what is the value of y when x = 3?
a. 6
b. 9
c. 12
d. 15

**Question 5.** If a function rule is defined as y = x^2 + 2x + 1, what is the value of y when x = 2?
a. 5
b. 6
c. 7
d. 8

**Question 6.** If a function rule is defined as y = 2x^2 - 3x + 1, what is the value of y when x = 1?
a. 0
b. 1
c. 2
d. 3

**Question 7.** If a function rule is defined as y = 3x^2 + 2x - 1, what is the value of y when x = 0?
a. -1
b. 0
c. 1
d. 2

**Question 8.** If a function rule is defined as y = 4x^2 - 2x + 3, what is the value of y when x = -1?
a. 5
b. 6
c. 7
d. 8

**Question 9.** If a function rule is defined as y = 5x^2 + 3x - 2, what is the value of y when x = -2?

a. 12
b. 14
c. 16
d. 18

**Question 10.** If a function rule is defined as y = 6x^2 - 4x + 1, what is the value of y when x = -3?
a. 55
b. 57
c. 59
d. 61

**Answer Key**

1. a. A rule that describes how to transform one set of numbers into another
2. c. 7
3. b. 11
4. b. 9
5. c. 7
6. c. 2
7. a. -1
8. c. 7
9. a. 12
10. c. 59

**Week 13**

**Question 1.** In the function f(x), which variable is the independent variable?
a. f
b. x
c. Both f and x
d. Neither f nor x

**Question 2.** In the function f(x), which variable is the dependent variable?
a. f
b. x
c. Both f and x
d. Neither f nor x

**Question 3.** What does the independent variable represent in a function?
a. The output of the function
b. The input of the function
c. The slope of the function
d. The y-intercept of the function

**Question 4.** What does the dependent variable represent in a function?

a. The output of the function
b. The input of the function
c. The slope of the function
d. The y-intercept of the function

**Question 5.** In the context of a function, what does it mean for a variable to be dependent?
a. It does not change
b. It changes in response to another variable
c. It changes independently of other variables
d. It remains constant regardless of other variables

**Question 6.** In the context of a function, what does it mean for a variable to be independent?
a. It does not change
b. It changes in response to another variable
c. It changes independently of other variables
d. It remains constant regardless of other variables

**Question 7.** If we know the value of the independent variable in a function, can we determine the value of the dependent variable?
a. Always
b. Never
c. Only if the function is linear
d. Only if the function is quadratic

**Question 8.** If we know the value of the dependent variable in a function, can we determine the value of the independent variable?
a. Always
b. Never
c. Only if the function is linear
d. Only if the function is quadratic

**Question 9.** In a function f(x), if x increases, what happens to f(x)?
a. It always increases
b. It always decreases
c. It could increase or decrease, depending on the function
d. It remains the same

**Question 10.** In a function f(x), if x decreases, what happens to f(x)?
a. It always increases
b. It always decreases
c. It could increase or decrease, depending on the function
d. It remains the same

**Answer Key**

1. b. x
2. a. f
3. b. The input of the function
4. a. The output of the function
5. b. It changes in response to another variable
6. c. It changes independently of other variables
7. a. Always
8. c. Only if the function is linear
9. c. It could increase or decrease, depending on the function
10. c. It could increase or decrease, depending on the function

**Week 14**

**Question 1.** What does the composition of functions mean?
a. Adding two functions together
b. Subtracting one function from another
c. Applying one function to the output of another function
d. Multiplying two functions together

**Question 2.** If we have two functions, f(x) and g(x), what does the notation f(g(x)) represent?
a. The product of f(x) and g(x)
b. The difference between f(x) and g(x)
c. The sum of f(x) and g(x)
d. The composition of f(x) and g(x)

**Question 3.** In the composition of functions f(g(x)), which function is applied first?
a. f(x)
b. g(x)
c. Both are applied at the same time
d. Neither is applied

**Question 4.** In the composition of functions f(g(x)), which function is applied second?
a. f(x)
b. g(x)
c. Both are applied at the same time
d. Neither is applied

**Question 5.** Is the composition of functions f(g(x)) always equal to g(f(x))?
a. Yes, always
b. No, never
c. Sometimes
d. Not enough information

**Question 6.** What is the domain of the composition of functions f(g(x))?
a. The set of all real numbers
b. The set of all integers
c. The set of all x such that g(x) is in the domain of f
d. The set of all x such that f(x) is in the domain of g

**Question 7.** What is the range of the composition of functions f(g(x))?
a. The set of all real numbers
b. The set of all integers
c. The set of all y such that y = f(g(x)) for some x in the domain
d. The set of all y such that y = g(f(x)) for some x in the domain

**Question 8.** If the function f(x) is increasing and the function g(x) is decreasing, is the composition f(g(x)) increasing or decreasing?
a. Increasing
b. Decreasing
c. It depends on the specific functions
d. Not enough information

**Question 9.** If the function f(x) is linear and the function g(x) is quadratic, what is the nature of the composition f(g(x))?
a. Linear
b. Quadratic
c. Cubic
d. It depends on the specific functions

**Question 10.** If the function f(x) is a one-to-one function and the function g(x) is also a one-to-one function, is the composition f(g(x)) a one-to-one function?
a. Yes, always
b. No, never
c. Sometimes
d. Not enough information

**Answer Key**

1. c. Applying one function to the output of another function
2. d. The composition of f(x) and g(x)
3. b. g(x)
4. a. f(x)
5. b. No, never
6. c. The set of all x such that g(x) is in the domain of f
7. c. The set of all y such that y = f(g(x)) for some x in the domain
8. c. It depends on the specific functions
9. d. It depends on the specific functions
10. a. Yes, always

**Week 15**

**Question 1.** What is a geometric sequence?
a. A sequence where each term is obtained by adding a constant difference to the previous term
b. A sequence where each term is obtained by multiplying the previous term by a constant ratio
c. A sequence where each term is obtained by raising the previous term to a power
d. A sequence where each term is obtained by dividing the previous term by a constant

**Question 2.** What is an explicit formula in the context of a geometric sequence?
a. A formula that allows you to find the nth term without knowing the previous term
b. A formula that allows you to find the nth term only by knowing the previous term
c. A formula that allows you to find the sum of the first n terms
d. A formula that allows you to find the difference between consecutive terms

**Question 3.** What is a recursive formula in the context of a geometric sequence?
a. A formula that allows you to find the nth term without knowing the previous term
b. A formula that allows you to find the nth term only by knowing the previous term
c. A formula that allows you to find the sum of the first n terms
d. A formula that allows you to find the difference between consecutive terms

**Question 4.** In a geometric sequence, what does the constant ratio represent?
a. The difference between consecutive terms
b. The factor by which each term is multiplied to get the next term
c. The sum of the first n terms
d. The nth term of the sequence

**Question 5.** Can a geometric sequence have a constant ratio of 1?
a. Yes, always
b. No, never
c. Only if the first term is 1
d. Only if the first term is 0

**Question 6.** Can a geometric sequence have a constant ratio of 0?
a. Yes, always
b. No, never
c. Only if the first term is 1
d. Only if the first term is 0

**Question 7.** If a geometric sequence has a constant ratio greater than 1, what can we say about the sequence?
a. It is increasing
b. It is decreasing

c. It is constant
d. It is oscillating

**Question 8.** If a geometric sequence has a constant ratio less than 1 but greater than 0, what can we say about the sequence?
a. It is increasing
b. It is decreasing
c. It is constant
d. It is oscillating

**Question 9.** If a geometric sequence has a constant ratio less than 0, what can we say about the sequence?
a. It is increasing
b. It is decreasing
c. It is constant
d. It is oscillating

**Question 10.** In the context of geometric sequences, what does the term "converge" mean?
a. The sequence approaches a certain value as n approaches infinity
b. The sequence approaches infinity as n approaches infinity
c. The sequence approaches zero as n approaches infinity
d. The sequence does not approach any value as n approaches infinity

**Answer Key**

1. b. A sequence where each term is obtained by multiplying the previous term by a constant ratio
2. a. A formula that allows you to find the nth term without knowing the previous term
3. b. A formula that allows you to find the nth term only by knowing the previous term
4. b. The factor by which each term is multiplied to get the next term
5. a. Yes, always
6. b. No, never
7. a. It is increasing
8. b. It is decreasing
9. d. It is oscillating
10. a. The sequence approaches a certain value as n approaches infinity

**Week 16**

Question 1. If a function f(x) is translated 3 units to the right, the new function is:
a) f(x + 3)
b) f(x - 3)
c) f(x) + 3
d) f(x) - 3

Question 2. A vertical translation of 4 units up will result in which transformation?
a) f(x) + 4
b) f(x - 4)
c) f(x + 4)
d) f(x) - 4

Question 3. What does the function g(x) = f(x) - 5 represent in terms of f(x)?
a) 5 units to the right
b) 5 units to the left
c) 5 units up
d) 5 units down

Question 4. A function that is translated 2 units to the left is represented by:
a) f(x + 2)
b) f(x - 2)
c) f(x) + 2
d) f(x) - 2

Question 5. The transformation h(x) = f(x + 7) will move the graph of f(x):
a) 7 units to the right
b) 7 units to the left
c) 7 units up
d) 7 units down

Question 6. A function that has been moved 6 units downward is represented by:
a) f(x + 6)
b) f(x - 6)
c) f(x) + 6
d) f(x) - 6

Question 7. If f(x) is the original function, which transformation represents a shift of 3 units to the left?
a) f(x + 3)
b) f(x) + 3
c) f(x - 3)
d) f(x) - 3

Question 8. The graph of f(x) moved 4 units to the right is:

a) f(x + 4)
b) f(x - 4)
c) f(x) + 4
d) f(x) - 4

Question 9. A vertical translation of a function 5 units downward is represented by:
a) f(x + 5)
b) f(x - 5)
c) f(x) + 5
d) f(x) - 5

Question 10. If the graph of f(x) is shifted 2 units upward, the new function is:
a) f(x + 2)
b) f(x - 2)
c) f(x) + 2
d) f(x) - 2

**Answer Key:**

1. b) f(x - 3)
2. a) f(x) + 4
3. d) 5 units down
4. a) f(x + 2)
5. b) 7 units to the left
6. d) f(x) - 6
7. a) f(x + 3)
8. b) f(x - 4)
9. d) f(x) - 5
10. c) f(x) + 2

**Week 17**

Question 1. What is the first step in finding the inverse of a function?
a) Swap x and y
b) Factor the function
c) Set the function equal to zero
d) Differentiate the function

Question 2. If a function is one-to-one, it:
a) Has no inverse
b) Has an inverse that is also a function
c) Has an inverse that is not a function
d) Is always a linear function

Question 3. The graph of a function and its inverse:
a) Are identical
b) Are reflections across the y-axis

c) Are reflections across the x-axis
d) Are reflections across the line y = x

Question 4. If f(f^-1(x)) = x, then f^-1(x) is:
a) The original function
b) The derivative of the function
c) The inverse of the function
d) The antiderivative of the function

Question 5. For a function to have an inverse that is also a function, it must be:
a) Continuous
b) Differentiable
c) One-to-one
d) Polynomial

Question 6. The inverse of a function is found by:
a) Setting the function equal to x
b) Swapping x and y and solving for y
c) Differentiating the function
d) Integrating the function

Question 7. If a function is not one-to-one, its inverse:
a) Is also a function
b) Is not a function
c) Does not exist
d) Is a constant function

Question 8. The horizontal line test is used to determine if a function:
a) Is continuous
b) Is differentiable
c) Has an inverse that is a function
d) Is a polynomial

Question 9. If a function passes the horizontal line test, it:
a) Is always increasing
b) Is always decreasing
c) Has an inverse that is a function
d) Does not have an inverse

Question 10. The notation f^-1(x) represents:
a) The reciprocal of the function
b) The negative exponent of the function
c) The inverse of the function
d) The derivative of the function

**Answer Key:**

1. a) Swap x and y
2. b) Has an inverse that is also a function

3. d) Are reflections across the line y = x
4. c) The inverse of the function
5. c) One-to-one
6. b) Swapping x and y and solving for y
7. b) Is not a function
8. c) Has an inverse that is a function
9. c) Has an inverse that is a function
10. c) The inverse of the function

**Week 18**

Question 1. The composition of two functions f and g is denoted by:
a) f + g
b) f - g
c) f x g
d) f o g

Question 2. If you have two functions f(x) and g(x), which of the following represents the composition of f with g?
a) f(g(x))
b) f(x) + g(x)
c) f(x)g(x)
d) f(x)/g(x)

Question 3. The composition of functions is:
a) Commutative
b) Associative
c) Distributive
d) None of the above

Question 4. If f(x) = x + 2 and g(x) = x^2, what is f(g(3))?
a) 11
b) 13
c) 9
d) 5

Question 5. The composition of a function with its inverse:
a) Always equals x
b) Always equals 1
c) Is undefined
d) Always equals 0

Question 6. If h(x) is the composition of f(x) and g(x), which function is applied first?
a) f(x)
b) g(x)
c) Both at the same time
d) Neither

Question 7. The domain of the composition of two functions is determined by:

a) The range of the first function
b) The domain of the second function
c) The intersection of the domains of both functions
d) The union of the domains of both functions

Question 8. If f and g are both linear functions, their composition is:
a) Linear
b) Quadratic
c) Cubic
d) Exponential

Question 9. If f(g(x))= x for all x in the domain of f, then:
a) f and g are inverses
b) f is the square of g
c) g is the square root of f
d) f and g are unrelated

Question 10. The composition of functions is used to:
a) Combine two functions into one
b) Find the inverse of a function
c) Solve systems of equations
d) Factor polynomials

**Answer Key:**

1. d) f o g
2. a) f(g(x))
3. d) None of the above
4. a) 11
5. a) Always equals x
6. b) g(x)
7. c) The intersection of the domains of both functions
8. a) Linear
9. a) f and g are inverses
10. a) Combine two functions into one

**Week 19**

Question 1. Which of the following statements about inverse functions is true?
a) They are mirror images of each other.
b) They undo each other's operations.
c) They always intersect at the origin.
d) They have the same domain and range.

Question 2. If a function is one-to-one, it:
a) Has a unique output for every input.
b) Passes the vertical line test.
c) Is always increasing.
d) Has a maximum value.

Question 3. The notation used to represent the inverse of function f is:
a) f^2
b) f'
c) f^-1
d) 1/f

Question 4. If a function has an inverse, the function must be:
a) Linear
b) Bijective
c) Periodic
d) Polynomial

Question 5. The graph of a function and its inverse will be symmetric about:
a) The x-axis
b) The y-axis
c) The line y = x
d) The origin

Question 6. Which of the following functions does NOT have an inverse?
a) A constant function
b) A cubic function
c) A square root function
d) An exponential function

Question 7. To find the inverse of a function, you:
a) Swap x and y and solve for y.
b) Take the reciprocal of each term.
c) Differentiate the function.
d) Integrate the function.

Question 8. If two functions are inverses of each other, their composition will result in:
a) x^2
b) x
c) 1
d) 0

Question 9. The domain of a function becomes the ________ of its inverse.
a) Range
b) Co-domain
c) Maximum
d) Minimum

Question 10. If a function is decreasing on its entire domain and is continuous, then:
a) It does not have an inverse.
b) Its inverse is also decreasing.
c) Its inverse is a function.
d) It is not one-to-one.

**Answer Key:**

1. b) They undo each other's operations.
2. a) Has a unique output for every input.
3. c) f^-1
4. b) Bijective
5. c) The line y = x
6. a) A constant function
7. a) Swap x and y and solve for y.
8. b) x
9. a) Range
10. c) Its inverse is a function.

**Week 20**

Question 1. Which of the following is NOT a property of inverse functions?
a) They have the same domain and range.
b) They are reflections of each other across the line y = x.
c) They are vertical translations of each other.
d) They undo each other's operations.

Question 2. If a function is not one-to-one, it:
a) Cannot have an inverse that is a function.
b) Always has an inverse.
c) Passes the horizontal line test.
d) Is always decreasing.

Question 3. The inverse of a function can be found by:
a) Squaring the function.
b) Taking the derivative.
c) Switching the roles of x and y.
d) Multiplying by -1.

Question 4. If the graph of a function contains the point (a, b), then the graph of its inverse will contain the point:
a) (a, b)
b) (-a, -b)
c) (b, a)
d) (a, -b)

Question 5. For a function to have an inverse that is also a function, it must:
a) Be a polynomial.
b) Be continuous.
c) Pass the vertical line test.
d) Pass the horizontal line test.

Question 6. The inverse of a function is:
a) Always a function.
b) Always increasing.

c) Unique for each function.
d) Always a polynomial.

Question 7. If a function is even, its inverse:
a) Is also even.
b) Is odd.
c) May not exist.
d) Is always a function.

Question 8. The composition of a function and its inverse always results in:
a) The identity function.
b) The zero function.
c) A constant function.
d) A quadratic function.

Question 9. If a function is defined by a horizontal line, its inverse:
a) Is a vertical line.
b) Is a horizontal line.
c) Does not exist.
d) Is a diagonal line.

Question 10. The graph of a function and its inverse are identical when:
a) The function is linear.
b) The function is a horizontal line.
c) The function is y = x.
d) The function is y = -x.

**Answer Key:**

1. c) They are vertical translations of each other.
2. a) Cannot have an inverse that is a function.
3. c) Switching the roles of x and y.
4. c) (b, a)
5. d) Pass the horizontal line test.
6. c) Unique for each function.
7. c) May not exist.
8. a) The identity function.
9. c) Does not exist.
10. c) The function is y = x.

**Week 21**

Question 1. The domain of a function refers to:
a) The set of all output values.
b) The highest and lowest points of a function.
c) The set of all input values for which the function is defined.
d) The slope of the function.

Question 2. Which type of function has a domain that is usually all real numbers?

a) Linear functions
b) Quadratic functions
c) Cubic functions
d) All of the above

Question 3. For which type of function do you need to ensure the value inside the square root is non-negative to determine the domain?
a) Exponential functions
b) Logarithmic functions
c) Radical functions
d) Polynomial functions

Question 4. If a function has a fraction, when is the function undefined?
a) When the numerator is zero.
b) When the denominator is zero.
c) When both the numerator and denominator are zero.
d) The function is always defined.

Question 5. Which function type has a domain restriction due to the base of the logarithm?
a) Polynomial functions
b) Radical functions
c) Logarithmic functions
d) Trigonometric functions

Question 6. Which of the following is a common domain restriction for trigonometric functions?
a) x cannot be zero.
b) x cannot be negative.
c) x cannot be a multiple of pi.
d) x can be any real number.

Question 7. If a function is defined for all real numbers, its domain is:
a) An empty set.
b) A finite set.
c) An infinite set.
d) Restricted to integers.

Question 8. The domain of a function can be affected by:
a) Discontinuities in the function.
b) The degree of the polynomial.
c) The coefficients of the function.
d) The graph's symmetry.

Question 9. To find the domain of a composite function, you must consider:
a) Only the domain of the outer function.
b) Only the domain of the inner function.
c) Both the domain of the outer and inner functions.
d) Neither the domain of the outer nor the inner functions.

Question 10. Which of the following functions has a domain that excludes negative numbers?
a) f(x) = x^3
b) f(x) = square root of x
c) f(x) = x^2 + 1
d) f(x) = x + 5

**Answer Key:**

1. c) The set of all input values for which the function is defined.
2. d) All of the above
3. c) Radical functions
4. b) When the denominator is zero.
5. c) Logarithmic functions
6. c) x cannot be a multiple of pi.
7. c) An infinite set.
8. a) Discontinuities in the function.
9. c) Both the domain of the outer and inner functions.
10. b) f(x) = square root of x

**Week 22**

Question 1. Logarithmic equations often require the use of properties of:
a) Polynomials
b) Exponents
c) Radicals
d) Fractions

Question 2. To solve a logarithmic equation, you may need to:
a) Convert to exponential form
b) Factor the equation
c) Complete the square
d) Use the quadratic formula

Question 3. If two logarithms with the same base are equal, then:
a) Their coefficients are equal
b) Their bases are equal
c) Their arguments are equal
d) They have no solution

Question 4. The logarithm of a product can be expressed as:
a) The sum of two logarithms
b) The difference of two logarithms
c) The product of two logarithms
d) The quotient of two logarithms

Question 5. When solving logarithmic equations, it's important to:
a) Check for extraneous solutions
b) Find the absolute value

c) Determine the slope
d) Calculate the midpoint

Question 6. The logarithm of a quotient can be expressed as:
a) The sum of two logarithms
b) The difference of two logarithms
c) The product of two logarithms
d) The quotient of two logarithms

Question 7. To combine logarithms, the logarithms must have:
a) The same coefficient
b) The same base
c) The same exponent
d) The same argument

Question 8. The inverse operation of a logarithm is:
a) Addition
b) Subtraction
c) Multiplication
d) Exponentiation

Question 9. The base of common logarithms is:
a) 2
b) e
c) 10
d) pi

Question 10. If a logarithmic equation contains logarithms with different bases, you might first:
a) Combine like terms
b) Use properties of logarithms to write in terms of a single log
c) Factor out the greatest common factor
d) Square both sides of the equation

**Answer Key:**

1. b) Exponents
2. a) Convert to exponential form
3. c) Their arguments are equal
4. a) The sum of two logarithms
5. a) Check for extraneous solutions
6. b) The difference of two logarithms
7. b) The same base
8. d) Exponentiation
9. c) 10
10. b) Use properties of logarithms to write in terms of a single log

**Week 23**

Question 1. The composition of functions is often represented by:
a) Addition
b) Subtraction
c) Division
d) An open circle

Question 2. If you have two functions, f and g, and you compose them, the order in which you compose them:
a) Doesn't matter; they're always the same
b) Matters; f composed with g is not necessarily the same as g composed with f
c) Is always f composed with g
d) Is always g composed with f

Question 3. The composition of functions is about:
a) Multiplying two functions
b) Adding two functions
c) Plugging one function into another
d) Dividing two functions

Question 4. If the output of one function becomes the input of another function, this process is called:
a) Inversion
b) Reflection
c) Composition
d) Transformation

Question 5. The domain of the composition of two functions is determined by:
a) The range of the first function
b) The domain of the second function
c) The intersection of the domains of both functions
d) The union of the domains of both functions

Question 6. If f(x) = x + 2 and g(x) = x^2, the composition f composed with g(x) means:
a) f(x) + g(x)
b) f of g(x)
c) g of f(x)
d) f(x) times g(x)

Question 7. The composition of a function with its inverse:
a) Gives the original function
b) Gives the identity function
c) Cancels the function out
d) Doubles the function

Question 8. If a function is composed with itself, it is often represented as:
a) f composed with f
b) 2f

c) f squared
d) f + f

Question 9. To find the range of a composition of functions, you should:
a) Look at the domain of the first function
b) Look at the range of the second function
c) Look at the range of the first function and the domain of the second
d) Always assume it's all real numbers

Question 10. The composition of functions is associative, meaning:
a) f o (g o h) = (f o g) o h
b) f o g = g o f
c) f o g o h = f + g + h
d) f o g o h = f x g x h

**Answer Key:**

1. d) An open circle
2. b) Matters; f o g is not necessarily the same as g o f
3. c) Plugging one function into another
4. c) Composition
5. c) The intersection of the domains of both functions
6. b) f ( g(x) )
7. b) Gives the identity function
8. a) f o f
9. c) Look at the range of the first function and the domain of the second
10. a) f o (g o h) = (f o g) o h

**Week 24**

Question 1. The domain of a composition of functions is determined by:
a) The range of the first function
b) The domain of the second function
c) The intersection of the domains of both functions
d) The union of the domains of both functions

Question 2. When finding the domain of a composition of functions, it's important to consider:
a) Only the domain of the outer function
b) Only the domain of the inner function
c) Both the domain of the inner function and where the output of the inner function is defined in the outer function
d) The sum of the two functions

Question 3. If the domain of function f is all real numbers and the domain of function g is all positive numbers, the domain of f(g(x)) is:
a) All real numbers
b) All positive numbers
c) All negative numbers

d) Undefined

Question 4. The domain of a composition of functions can sometimes be:
a) Smaller than the domain of either individual function
b) Larger than the domain of either individual function
c) Exactly the same as the domain of the inner function
d) Exactly the same as the domain of the outer function

Question 5. If a function has a square root, its domain is typically:
a) All real numbers
b) All positive numbers
c) All numbers where the expression inside the square root is non-negative
d) All numbers where the expression inside the square root is negative

Question 6. When composing two functions, it's important to consider:
a) Only the range of the inner function
b) Only the range of the outer function
c) Where the range of the inner function intersects with the domain of the outer function
d) The sum of the ranges of both functions

Question 7. If the domain of function f is all numbers greater than 2 and the domain of function g is all numbers less than 5, the domain of f(g(x)) is:
a) All numbers greater than 2
b) All numbers less than 5
c) All numbers between 2 and 5
d) All numbers less than 2 or greater than 5

Question 8. The domain of a composition of functions is important because:
a) It tells us where the function is defined
b) It tells us the highest and lowest values of the function
c) It tells us the slope of the function
d) It tells us the y-intercept of the function

Question 9. If a function has a denominator, its domain excludes values that make the denominator:
a) Zero
b) Negative
c) Positive
d) Undefined

Question 10. When determining the domain of a composition of functions, it's often necessary to:
a) Solve for x
b) Set the functions equal to each other
c) Consider restrictions from both functions
d) Find the maximum and minimum values

**Answer Key:**

1. c) The intersection of the domains of both functions
2. c) Both the domain of the inner function and where the output of the inner function is defined in the outer function
3. b) All positive numbers
4. a) Smaller than the domain of either individual function
5. c) All numbers where the expression inside the square root is non-negative
6. c) Where the range of the inner function intersects with the domain of the outer function
7. a) All numbers greater than 2
8. a) It tells us where the function is defined
9. a) Zero
10. c) Consider restrictions from both functions

**Week 25**

Question 1. Which type of growth has a constant rate of change?
a) Exponential growth
b) Linear growth
c) Both linear and exponential growth
d) Neither linear nor exponential growth

Question 2. In which type of growth does the quantity increase by a fixed amount over equal intervals?
a) Exponential growth
b) Linear growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 3. If a set of data shows a pattern of doubling, it is likely:
a) Linear growth
b) Exponential growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 4. Which type of growth can be represented by a straight line when graphed?
a) Exponential growth
b) Linear growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 5. In which type of growth does the quantity increase by a fixed percentage over equal intervals?
a) Linear growth
b) Exponential growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 6. Which of the following is a characteristic of linear growth?
a) Multiplicative change

b) Additive change
c) Percentage change
d) Doubling

Question 7. If a graph shows a curve that rises more and more steeply, it is likely representing:
a) Linear growth
b) Exponential growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 8. Which type of growth is often associated with compound interest or population growth?
a) Linear growth
b) Exponential growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 9. If a function has a constant difference between consecutive outputs, it is:
a) Exponential growth
b) Linear growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

Question 10. Which type of growth can be described as "growth by the same factor over equal intervals"?
a) Linear growth
b) Exponential growth
c) Neither linear nor exponential growth
d) Both linear and exponential growth

**Answer Key:**

1. b) Linear growth
2. b) Linear growth
3. b) Exponential growth
4. b) Linear growth
5. b) Exponential growth
6. b) Additive change
7. b) Exponential growth
8. b) Exponential growth
9. b) Linear growth
10. b) Exponential growth

Week 26

Question 1. Exponential growth can be best described as:
a) A constant rate of increase.
b) A decreasing rate of increase.

c) An increase by a fixed amount.
d) An increase by a fixed percentage.

Question 2. Which of the following is NOT a real-world example of exponential growth?
a) The spread of a virus.
b) The growth of a savings account with compound interest.
c) The height of a tree as it grows.
d) The population of bacteria in a culture.

Question 3. The formula for exponential growth can be expressed as:
a) y = mx + b
b) y = ab^x
c) y = ax^2 + bx + c
d) y = a/bx

Question 4. In the exponential growth formula, the 'b' value represents:
a) The initial amount.
b) The growth factor.
c) The rate of change.
d) The y-intercept.

Question 5. If a quantity doubles every day, the growth factor is:
a) 0.5
b) 1
c) 2
d) 4

Question 6. Exponential growth is often associated with:
a) Linear patterns.
b) Quadratic patterns.
c) J-shaped curves.
d) U-shaped curves.

Question 7. In an exponential growth scenario, as time increases, the quantity:
a) Increases linearly.
b) Decreases exponentially.
c) Increases exponentially.
d) Remains constant.

Question 8. Which of the following is NOT a characteristic of exponential growth?
a) It starts off slowly.
b) It becomes rapid over time.
c) It always goes up.
d) It has a constant rate of change.

Question 9. In the context of money, exponential growth is often linked to:
a) Simple interest.
b) Compound interest.
c) Fixed deposits.

d) Linear investments.

Question 10. If a population of animals is experiencing exponential growth, what might you expect to happen if resources become limited?
a) The growth will continue indefinitely.
b) The growth will suddenly stop.
c) The growth rate will decrease.
d) The population will become extinct immediately.

**Answer Key:**

1. d) An increase by a fixed percentage.
2. c) The height of a tree as it grows.
3. b) y = ab^x
4. b) The growth factor.
5. c) 2
6. c) J-shaped curves.
7. c) Increases exponentially.
8. d) It has a constant rate of change.
9. b) Compound interest.
10. c) The growth rate will decrease.

Week 27

Question 1. The average rate of change can be best described as:
a) The slope between two points.
b) The y-intercept of a function.
c) The maximum point on a curve.
d) The instantaneous rate of change.

Question 2. Which of the following scenarios would likely involve finding the average rate of change?
a) Calculating the speed of a car at a specific moment.
b) Determining the growth of a plant over a month.
c) Finding the highest point on a roller coaster.
d) Calculating the area under a curve.

Question 3. The average rate of change is most closely associated with:
a) Derivatives.
b) Integrals.
c) Slopes.
d) Vertices.

Question 4. If a function is linear, its average rate of change over any interval is:
a) Constant.
b) Zero.
c) Increasing.
d) Decreasing.

Question 5. The average rate of change of a function over an interval [a, b] is the same as:
a) The derivative of the function at point a.
b) The y-value of the function at point b.
c) The slope of the tangent line at point a.
d) The slope of the secant line through points (a, f(a)) and (b, f(b)).

Question 6. A function that is decreasing on an interval will have an average rate of change that is:
a) Positive.
b) Negative.
c) Zero.
d) Undefined.

Question 7. The units of the average rate of change are:
a) The same as the units of the function.
b) The units of the x-axis divided by the units of the y-axis.
c) The units of the y-axis divided by the units of the x-axis.
d) Always in meters per second.

Question 8. If the average rate of change of a function is zero over an interval, the function is:
a) Increasing.
b) Decreasing.
c) Constant.
d) Non-existent.

Question 9. The average rate of change can be found using which formula?
a) (f(b) - f(a)) / (b - a)
b) f'(a)
c) ∫f(x) dx from a to b
d) f(b) * f(a)

Question 10. If the average rate of change is positive over an interval, the function is:
a) Increasing.
b) Decreasing.
c) Constant.
d) Oscillating.

**Answer Key:**

1. a) The slope between two points.
2. b) Determining the growth of a plant over a month.
3. c) Slopes.
4. a) Constant.
5. d) The slope of the secant line through points (a, f(a)) and (b, f(b)).
6. b) Negative.
7. c) The units of the y-axis divided by the units of the x-axis.
8. c) Constant.
9. a) (f(b) - f(a)) / (b - a)

10. a) Increasing.

Week 28

Question 1. Which of the following best describes the graph of an exponential function that has a positive base greater than 1?
a) It decreases without bound.
b) It passes through the point (0, 1).
c) It has a y-intercept at (0, 0).
d) It is a straight line.

Question 2. The horizontal asymptote of the graph of a basic exponential function is:
a) $y = 1$
b) $y = 0$
c) $x = 0$
d) $x = 1$

Question 3. If an exponential function has a base between 0 and 1, its graph:
a) It forms an increasing graph
B) It forms a decreasing graph
c) It doesn’t increase nor decrease
d) None of the above

Question 4. The domain of all basic exponential functions is:
a) All real numbers.
b) All positive numbers.
c) All negative numbers.
d) From 0 to infinity.

Question 5. The range of the function y = 2^x is:
a) $y > 0$
b) $y < 0$
c) $y > 1$
d) $y < 1$

Question 6. An exponential function with a negative exponent will:
a) Always be negative.
b) Flip the graph over the x or y axis
c) Have no y-intercept.
d) None of the above

Question 7. Which of the following functions will have a graph that passes through the point (0, 3)?
a) y = 3^x
b) y = x^3
c) y = 2^x + 2
d) y = 3x

Question 8. The point where an exponential function crosses the y-axis is called the:
a) Vertex.
b) Focus.
c) Y-intercept.
d) Asymptote.

Question 9. For the function y = a^x, if "a" is greater than 1, the function is:
a) Decreasing.
b) Increasing.
c) Constant.
d) Oscillating.

Question 10. The function y = (1/2)^x will:
a) Grow rapidly.
b) Decrease but never reach zero.
c) Cross the x-axis.
d) Have a range of all real numbers.

**Answer Key:**

1. b) It passes through the point (0, 1).
2. b) y = 0
3. b) Is always above the x-axis.
4. a) All real numbers.
5. a) y > 0
6. c) Reflect across the y-axis.
7. C)y = 2^x + 2
8. c) Y-intercept.
9. b) Increasing.
10. b) Decrease but never reach zero.

Week 29

Question 1. Exponential growth can be best described as:
a) Linear increase over time.
b) Decrease over time.
c) Increase by a fixed percentage over equal intervals of time.
d) Random growth over time.

Question 2. In the context of population growth, what does the term "doubling time" refer to?
a) The time it takes for a population to decrease by half.
b) The time it takes for a population to double in size.
c) The time it takes for a population to reach its maximum size.
d) The time it takes for a population to stabilize.

Question 3. Which factor is NOT typically considered in basic exponential growth models?
a) Initial population.
b) Growth rate.
c) Carrying capacity.

d) Time.

Question 4. If a population is growing exponentially, its growth rate is:
a) Constant.
b) Decreasing.
c) Increasing.
d) Zero.

Question 5. Exponential growth is often observed in populations that:
a) Have unlimited resources.
b) Are near their carrying capacity.
c) Have many predators.
d) Are in decline.

Question 6. In an exponential growth model, if the growth rate is 5%, this means:
a) The population increases by 5 individuals each year.
b) The population decreases by 5% each year.
c) The population increases by 5% of its current size each year.
d) The population size is 5% of the maximum possible size.

Question 7. Which of the following is NOT a real-world example of exponential growth?
a) Spread of a virus.
b) Compound interest in a bank account.
c) Linear increase in salary over years.
d) Population growth in a new city.

Question 8. The formula for exponential growth typically includes which of the following components?
a) Initial amount.
b) Time.
c) Maximum capacity.
d) Linear rate.

Question 9. In the context of exponential growth, what happens to the population size as time approaches infinity?
a) It decreases to zero.
b) It stabilizes at the carrying capacity.
c) It continues to grow without bound.
d) It oscillates around a fixed value.

Question 10. Exponential growth can become logistic growth when:
a) Resources become unlimited.
b) The growth rate becomes zero.
c) The population reaches its carrying capacity.
d) Predators are introduced to the environment.

**Answer Key:**

1. c) Increase by a fixed percentage over equal intervals of time.

2. b) The time it takes for a population to double in size.
3. c) Carrying capacity.
4. c) Increasing.
5. a) Have unlimited resources.
6. c) The population increases by 5% of its current size each year.
7. c) Linear increase in salary over years.
8. a) Initial amount.
9. c) It continues to grow without bound.
10. c) The population reaches its carrying capacity.

Week 30

Question 1. Which of the following is equivalent to 180 degrees?
a) 1 radian
b) π radians
c) 2π radians
d) 0.5π radians

Question 2. How many degrees are there in a full circle?
a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Question 3. How many radians are there in a full circle?
a) π radians
b) 2π radians
c) 3π radians
d) 4π radians

Question 4. If you have an angle measured in radians, how do you convert it to degrees?
a) Multiply by π/180
b) Divide by π/180
c) Multiply by 180/π
d) Divide by 180/π

Question 5. Which of the following is half a circle in radians?
a) π/2 radians
b) π radians
c) 3π/2 radians
d) 2π radians

Question 6. A quarter circle is how many radians?
a) π/4 radians
b) π/2 radians
c) π radians
d) 3π/4 radians

Question 7. Which of the following angles is the smallest?

a) π/6 radians
b) π/4 radians
c) π/3 radians
d) π/2 radians

Question 8. If an angle is 45 degrees, how many radians is it approximately?
a) π/6 radians
b) π/4 radians
c) π/3 radians
d) π/2 radians

Question 9. Which of the following is equivalent to 90 degrees?
a) π/6 radians
b) π/4 radians
c) π/3 radians
d) π/2 radians

Question 10. To convert an angle from degrees to radians, you should:
a) Multiply by the radius.
b) Divide by the radius.
c) Multiply by π and divide by 180.
d) Multiply by 180 and divide by π.

**Answer Key:**

1. b) π radians
2. d) 360 degrees
3. b) 2π radians
4. c) Multiply by 180/π
5. b) π radians
6. b) π/2 radians
7. a) π/6 radians
8. b) π/4 radians
9. d) π/2 radians
10. c) Multiply by π and divide by 180.

Week 31

Question 1. What is the radius of a unit circle?
a) 0
b) 1
c) 2
d) 3

Question 2. Where is the unit circle centered in a Cartesian coordinate system?
a) At the origin (0,0)
b) At (1,1)
c) At (0,1)

d) At (1,0)

Question 3. What is the circumference of the unit circle?
a) 1
b) 2π
c) π
d) 2

Question 4. What is the diameter of the unit circle?
a) 1
b) 2
c) π
d) 2π

Question 5. In the unit circle, what is the cosine of an angle equal to?
a) The x-coordinate of the point where the radius intersects the circle
b) The y-coordinate of the point where the radius intersects the circle
c) The radius of the circle
d) The circumference of the circle

Question 6. In the unit circle, what is the sine of an angle equal to?
a) The x-coordinate of the point where the radius intersects the circle
b) The y-coordinate of the point where the radius intersects the circle
c) The radius of the circle
d) The circumference of the circle

Question 7. In the unit circle, what angle (in degrees) corresponds to the point (1,0)?
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

Question 8. In the unit circle, what angle (in degrees) corresponds to the point (0,1)?
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

Question 9. In the unit circle, what angle (in degrees) corresponds to the point (-1,0)?
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

Question 10. In the unit circle, what angle (in degrees) corresponds to the point (0,-1)?
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

**Answer Key:**

1. b) 1
2. a) At the origin (0,0)
3. b) 2π
4. b) 2
5. a) The x-coordinate of the point where the radius intersects the circle
6. b) The y-coordinate of the point where the radius intersects the circle
7. a) 0 degrees
8. b) 90 degrees
9. c) 180 degrees
10. d) 270 degrees

Week 32

Question 1. What is a reference angle?
a) The angle formed with the x-axis
b) The angle formed with the y-axis
c) The angle formed with the z-axis
d) The angle formed with the origin

Question 2. In which quadrant is the reference angle always positive?
a) Quadrant I
b) Quadrant II
c) Quadrant III
d) All quadrants

Question 3. What is the range of values for a reference angle?
a) 0 to 90 degrees
b) 0 to 180 degrees
c) 0 to 270 degrees
d) 0 to 360 degrees

Question 4. How do you find the reference angle of an angle in the second quadrant?
a) Subtract the angle from 180 degrees
b) Subtract 180 degrees from the angle
c) Subtract the angle from 90 degrees
d) Subtract 90 degrees from the angle

Question 5. How do you find the reference angle of an angle in the fourth quadrant?
a) Subtract the angle from 360 degrees
b) Subtract 360 degrees from the angle
c) Subtract the angle from 270 degrees
d) Subtract 270 degrees from the angle

Question 6. What is the reference angle for an angle of 45 degrees?
a) 45 degrees
b) 135 degrees

c) 225 degrees
d) 315 degrees

Question 7. What is the reference angle for an angle of 150 degrees?
a) 30 degrees
b) 150 degrees
c) 210 degrees
d) 330 degrees

Question 8. What is the reference angle for an angle of 300 degrees?
a) 60 degrees
b) 120 degrees
c) 240 degrees
d) 300 degrees

Question 9. Can the reference angle be equal to the given angle?
a) Yes
b) No
c) Only in the first quadrant
d) Only in the fourth quadrant

Question 10. Why are reference angles useful?
a) They help in finding the exact values of trigonometric functions
b) They help in graphing linear equations
c) They help in solving quadratic equations
d) They help in finding the area of a circle

**Answer Key:**

1. a) The angle formed with the x-axis
2. d) All quadrants
3. a) 0 to 90 degrees
4. a) Subtract the angle from 180 degrees
5. a) Subtract the angle from 360 degrees
6. a) 45 degrees
7. a) 30 degrees
8. a) 60 degrees
9. c) Only in the first quadrant
10. a) They help in finding the exact values of trigonometric functions

Week 33

Question 1. In a right triangle, what does sine represent?
a) Opposite over adjacent
b) Adjacent over hypotenuse
c) Opposite over hypotenuse
d) Hypotenuse over opposite

Question 2. In a right triangle, what does cosine represent?
a) Opposite over adjacent
b) Adjacent over hypotenuse
c) Opposite over hypotenuse
d) Hypotenuse over opposite

Question 3. In a right triangle, what does tangent represent?
a) Opposite over adjacent
b) Adjacent over hypotenuse
c) Opposite over hypotenuse
d) Hypotenuse over opposite

Question 4. What is the hypotenuse of a right triangle?
a) The side opposite the right angle
b) The side adjacent to the right angle
c) The longest side of the triangle
d) Both a and c

Question 5. What is the adjacent side in terms of an angle in a right triangle?
a) The side opposite to the angle
b) The side forming the angle and not being the hypotenuse
c) The longest side of the triangle
d) The side that is not forming the angle

Question 6. In trigonometry, what does SOH-CAH-TOA help you remember?
a) The definitions of sine, cosine, and tangent
b) The Pythagorean theorem
c) The area of a triangle
d) The perimeter of a triangle

Question 7. What is the reciprocal of sine?
a) Cosine
b) Tangent
c) Cosecant
d) Secant

Question 8. What is the reciprocal of cosine?
a) Sine
b) Tangent
c) Cosecant
d) Secant

Question 9. What is the reciprocal of tangent?
a) Sine
b) Cosine
c) Cotangent
d) Cosecant

Question 10. If the angle of a right triangle is 90 degrees, what is the value of its sine?
a) 0
b) 1
c) Undefined
d) 0.5

**Answer Key:**

1. c) Opposite over hypotenuse
2. b) Adjacent over hypotenuse
3. a) Opposite over adjacent
4. d) Both a and c
5. b) The side forming the angle and not being the hypotenuse
6. a) The definitions of sine, cosine, and tangent
7. c) Cosecant
8. d) Secant
9. c) Cotangent
10. c) Undefined

Week 34

Question 1. What is the inverse function of sine?
a) Cosine
b) Tangent
c) Arcsine
d) Cosecant

Question 2. What is the inverse function of cosine?
a) Sine
b) Tangent
c) Arccosine
d) Secant

Question 3. What is the inverse function of tangent?
a) Sine
b) Cosine
c) Arctangent
d) Cotangent

Question 4. What is the range of the arcsine function?
a) 0 to 360 degrees

b) -90 to 90 degrees
c) 0 to 180 degrees
d) -180 to 180 degrees

Question 5. What is the range of the arccosine function?
a) 0 to 360 degrees
b) -90 to 90 degrees
c) 0 to 180 degrees
d) -180 to 180 degrees

Question 6. What is the domain of the arctangent function?
a) All real numbers
b) 0 to 1
c) -1 to 1
d) 0 to 180 degrees

Question 7. What is the principal value of the inverse trigonometric functions?
a) The smallest possible value
b) The largest possible value
c) The value within a restricted range
d) The value within an unrestricted range

Question 8. What is the output of an inverse trigonometric function?
a) A length
b) An angle
c) A ratio
d) A triangle

Question 9. Can inverse trigonometric functions be used to find angles in a right triangle?
a) Yes
b) No
c) Only for acute angles
d) Only for obtuse angles

Question 10. What is the notation for arcsine?
a) sin^(-1)
b) cos^(-1)
c) tan^(-1)
d) cot^(-1)

**Answer Key:**

1. c) Arcsine
2. c) Arccosine
3. c) Arctangent
4. b) -90 to 90 degrees
5. c) 0 to 180 degrees
6. a) All real numbers
7. c) The value within a restricted range

8. b) An angle
9. a) Yes
10. a) sin^(-1)

Week 35

Question 1. What do the sum and difference identities help us find?
a) The sine, cosine, and tangent of the sum or difference of two angles
b) The area of a triangle
c) The perimeter of a square
d) The volume of a sphere

Question 2. The sum and difference identities are a type of what?
a) Trigonometric identities
b) Algebraic expressions
c) Geometric theorems
d) Calculus formulas

Question 3. In the context of trigonometry, what does the term "identity" mean?
a) A formula that is always true
b) A formula that is sometimes true
c) A formula that is never true
d) A formula that is true only for right angles

Question 4. The sum identity for cosine involves which trigonometric functions of the individual angles?
a) Sine and cosine
b) Tangent and cosine
c) Sine and tangent
d) Cosine and cosine

Question 5. The sum and difference identities can be derived from which of the following?
a) The unit circle
b) The Pythagorean theorem
c) Euler's formula
d) Both a and b

Question 6. The sum and difference identities are used extensively in which branch of mathematics?
a) Algebra
b) Geometry
c) Trigonometry
d) Calculus

Question 7. The sum and difference identities are also known as?
a) Addition formulas
b) Compound angle formulas
c) Trigonometric identities

d) Both b and c

Question 8. What do we use the sum and difference identities for?
a) To find the trigonometric functions of the sum or difference of two angles
b) To find the area of a circle
c) To find the volume of a cylinder
d) To find the perimeter of a rectangle

Question 9. The sum and difference identities are applicable to which of the following?
a) Only acute angles
b) Only obtuse angles
c) Any angles
d) Only right angles

Question 10. The sum and difference identities are useful for solving problems in which field?
a) Geometry
b) Algebra
c) Trigonometry
d) Both a and c

**Answer Key:**

1. a) The sine, cosine, and tangent of the sum or difference of two angles
2. a) Trigonometric identities
3. a) A formula that is always true
4. a) Sine and cosine
5. d) Both a and b
6. c) Trigonometry
7. d) Both b and c
8. a) To find the trigonometric functions of the sum or difference of two angles
9. c) Any angles
10. d) Both a and c

Week 36

**Question 1. What is the general shape of the graph of a square root function?**
a) U-shape
b) Straight line
c) Half of a U-shape
d) Wavy line

**Question 2. What is the starting point of the graph of the basic square root function y = square root of x?**
a) (0, 0)
b) (1, 1)
c) (-1, -1)
d) (0, 1)

**Question 3. How does the graph of the square root function change when you multiply it by a negative number?**
a) It flips over the x-axis
b) It flips over the y-axis
c) It moves to the right
d) It moves to the left

**Question 4. What happens to the graph of y = square root of x when you add a number inside the square root, like y = square root of (x+3)?**
a) It moves 3 units to the left
b) It moves 3 units to the right
c) It moves 3 units up
d) It moves 3 units down

**Question 5. If you see a function written as y = 2 times the square root of x, what does the 2 do to the graph?**
a) Stretches it vertically
b) Shrinks it vertically
c) Moves it to the right
d) Moves it to the left

**Question 6. What is the domain of the function y = square root of x?**
a) All real numbers
b) All non-negative numbers
c) All negative numbers
d) Only the number zero

**Question 7. What is the range of the function y = square root of x?**
a) All real numbers
b) All non-negative numbers
c) All negative numbers
d) Only the number zero

**Question 8. How does the graph of the square root function look in the fourth quadrant?**
a) It doesn't exist in the fourth quadrant
b) It is a straight line
c) It is a U-shape
d) It is a downward slope

**Question 9. What kind of symmetry does the graph of y = square root of x have?**
a) Symmetry about the x-axis
b) Symmetry about the y-axis
c) Symmetry about the origin
d) It does not have symmetry

**Question 10. What is the y-intercept of the function y = square root of x?**
a) It does not have a y-intercept
b) (0, 0)

c) (0, 1)
d) (1, 0)

**Answer Key**

1. c) Half of a U-shape
2. a) (0, 0)
3. a) It flips over the x-axis
4. b) It moves 3 units to the right
5. a) Stretches it vertically
6. b) All non-negative numbers
7. b) All non-negative numbers
8. a) It doesn't exist in the fourth quadrant
9. d) It does not have symmetry
10. a) It does not have a y-intercept

Week 37

**Question 1.** The unit circle has a radius of:
a) 0
b) 1
c) 2
d) 10

**Question 2.** The center of the unit circle is located at:
a) (0,0)
b) (1,1)
c) (0,1)
d) (1,0)

**Question 3.** The unit circle is commonly used in which branch of mathematics?
a) Algebra
b) Geometry
c) Trigonometry
d) Calculus

**Question 4.** On the unit circle, the point (1,0) corresponds to an angle of:
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

**Question 5.** On the unit circle, the x-coordinate represents the:
a) Sine of the angle
b) Cosine of the angle
c) Tangent of the angle
d) Cotangent of the angle

**Question 6.** On the unit circle, the y-coordinate represents the:
a) Sine of the angle
b) Cosine of the angle
c) Tangent of the angle
d) Cotangent of the angle

**Question 7.** The unit circle is defined in the:
a) xy-plane
b) xz-plane
c) yz-plane
d) zx-plane

**Question 8.** The angle that corresponds to the point (-1,0) on the unit circle is:
a) 0 degrees
b) 90 degrees
c) 180 degrees
d) 270 degrees

**Question 9.** The unit circle helps to relate _______ to _______.
a) Sine, Cosine
b) Tangent, Cotangent
c) Secant, Cosecant
d) All of the above

**Question 10.** The circumference of the unit circle is:
a) 1
b) 2
c) 3.14
d) 6.28

**Answer Key**

1. b) 1
2. a) (0,0)
3. c) Trigonometry
4. a) 0 degrees
5. b) Cosine of the angle
6. a) Sine of the angle
7. a) xy-plane
8. c) 180 degrees
9. d) All of the above
10. d) 6.28