



Algebra I Unit 6: Graphing Equations and Inequalities

1. Which quadrant **cannot** have a negative x -coordinate?

- (A) I only
- (B) I and II
- (C) III only
- (D) I and IV

2. Which pair of points creates a line segment that is located entirely in Quadrant II?

- (A) $(-2, 3)$ and $(-2, 4)$
- (B) $(2, -3)$ and $(2, -4)$
- (C) $(-2, -3)$ and $(-2, -4)$
- (D) $(2, 3)$ and $(-2, 4)$

3. What is the slope of the linear equation that corresponds to the data from the following table?

x	y
0	0
2	3
4	6
6	9

- (A) 2
- (B) 3
- (C) $\frac{2}{3}$
- (D) $\frac{3}{2}$



4. The table below describes the plotted points of a linear function with a slope of 2. What y -value is missing from the data table?

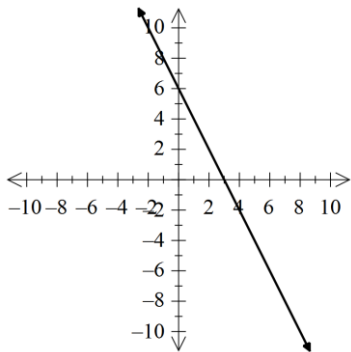
x	y
0	-3
1	?
2	1
3	3

- (A) -2
- (B) -1
- (C) 0
- (D) None of the answers are correct.

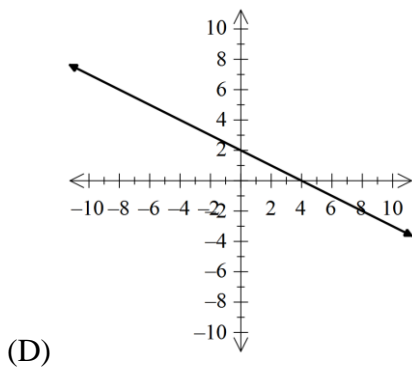
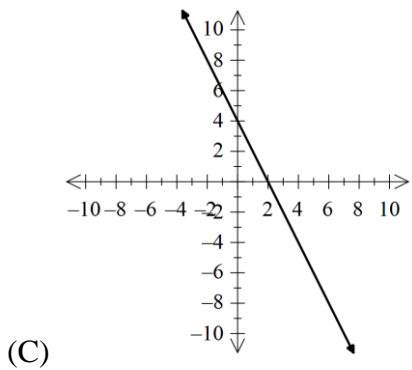
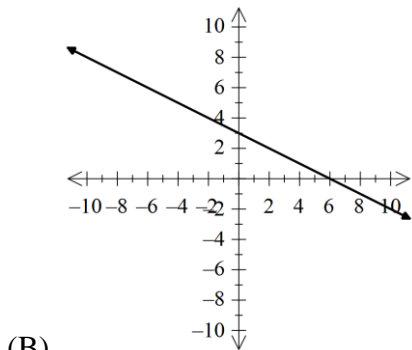
5. What is the output of $y = 2x - 4$ when the input is 0?

- (A) 2
- (B) -4
- (C) 4
- (D) $\frac{1}{2}$

6. Which graph corresponds to $4x + 2y = 12$?



(A)



7. What is the y-intercept of $y = 3x$?

- (A) 3
- (B) 1
- (C) 0
- (D) $\frac{1}{3}$

8. What is $5x - 3y = -9$ written in slope-intercept form?

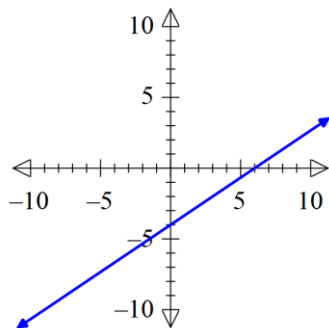


- (A) $y = \frac{-3}{5}x - 3$
- (B) $y = \frac{-5}{3}x + 3$
- (C) $y = \frac{3}{5}x - 3$
- (D) $y = \frac{5}{3}x + 3$

9. What is the equation of the line that is parallel to $y = \frac{1}{2}x - 5$ and passes through the point $(-2, 3)$?

- (A) $y = \frac{1}{2}x + 4$
- (B) $y = \frac{-1}{2}x - 6$
- (C) $y = \frac{1}{2}x + 6$
- (D) $y = 2x - 5$

10. What is the equation of the line graphed below?



- (A) $y = 6x - 4$
- (B) $y = \frac{3}{2}x - 4$
- (C) $y = \frac{2}{3}x - 4$
- (D) $y = 4x - 6$

11. What is the slope of the linear function that corresponds to the sequence $\{-7, -4, -1, 2\}$ if the x -values increase incrementally by 1?



- (A) 1
- (B) 0
- (C) 3
- (D) -3

12. What conclusion can we reach by analyzing the equation $y = 2(3)^x$?

- (A) The growth factor is 2
- (B) The growth factor is 3
- (C) The equation is equivalent to $y = 6^x$
- (D) None of the above

13. What is the initial value, a , in the equation $y = (5)^x$?

- (A) 0
- (B) 1
- (C) 5
- (D) Not enough information given

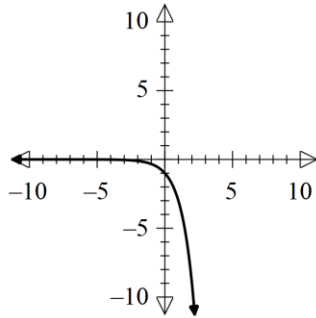
14. Which phrase **does not** describe the graph of $y = 3\left(\frac{1}{2}\right)^x$?

- (A) Exponential growth
- (B) Exponential decay
- (C) Decreasing
- (D) Concave up

15. Which of the following equations has an asymptote of $y = 3$?

- (A) $y = 3x^2$
- (B) $y = 2^x + 3$
- (C) $y = 3^x$
- (D) None of the above

16. What is the concavity of the graph shown below?



- (A) No concavity
- (B) Concave up
- (C) Concave down
- (D) Linear

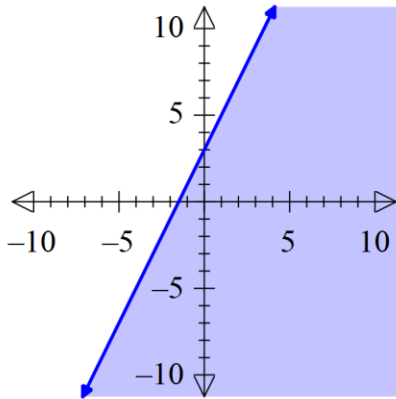
17. If $a_1 = 3$ and $r = \frac{1}{2}$, what is a_4 ?

- (A) $a_4 = \frac{3}{2}$
- (B) $a_4 = \frac{3}{8}$
- (C) $a_4 = 6$
- (D) $a_4 = 12$

18. Which of the following equations **does not** describe a function?

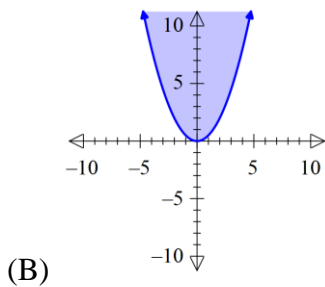
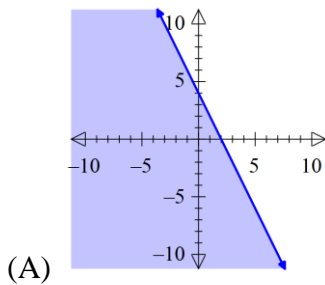
- (A) $2x + 3y = 4$
- (B) $y = 5$
- (C) $x = 6$
- (D) $y = x^2$

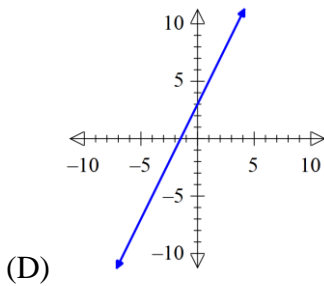
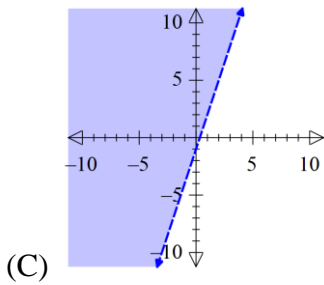
19. Identify what is incorrect in the graph of $y < 2x + 3$ below.



- (A) The graph should be represented on a number line.
- (B) The shading should be above the line, not below it.
- (C) The y -intercept is wrong.
- (D) The line should be dashed, not solid.

20. Which graph below shows a non-strict linear inequality?





21. If the sign at the Wild Shmoop Waterpark says no one under 48” tall can go on the Dastardly Drop ride, which of the following inequalities represents the required height, h , for a person to be able to go on the ride?

- (A) $h < 48$
- (B) $h > 48$
- (C) $h \leq 48$
- (D) $h \geq 48$

22. You have just started collecting marbles. Your mom gives you 5 marbles to start the collection and then she agrees to buy you 2 more marbles each week. What type of model would be used to represent this scenario?

- (A) Linear
- (B) Exponential
- (C) Quadratic
- (D) None of the above

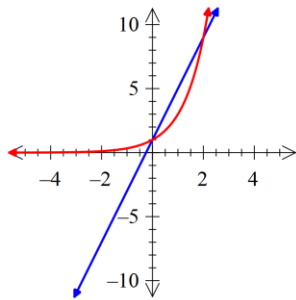
23. You have a weed that seems to be growing like a...weed. If the growth of the weed can be modeled by the exponential equation $y = 4(1.5)^x$ where x is the time in weeks



and y is the height of the weed in inches, what was the height of the weed when you initially measured it?

- (A) 1.5 inches
- (B) 4 inches
- (C) 5.5 inches
- (D) 6 inches

24. What values of x show that the exponential function growth will eventually outpace the linear function growth?



- (A) $x < 0$
- (B) $0 < x < 2$
- (C) $x > 2$
- (D) All values of x