Coordinate Algebra EOC (GSE) Quiz

Functions - (MGSE9-12.F.IF.4) Interpret Features

Student Name: _____ Date: _____

Teacher Name: THUYNGA DAO Score: _____

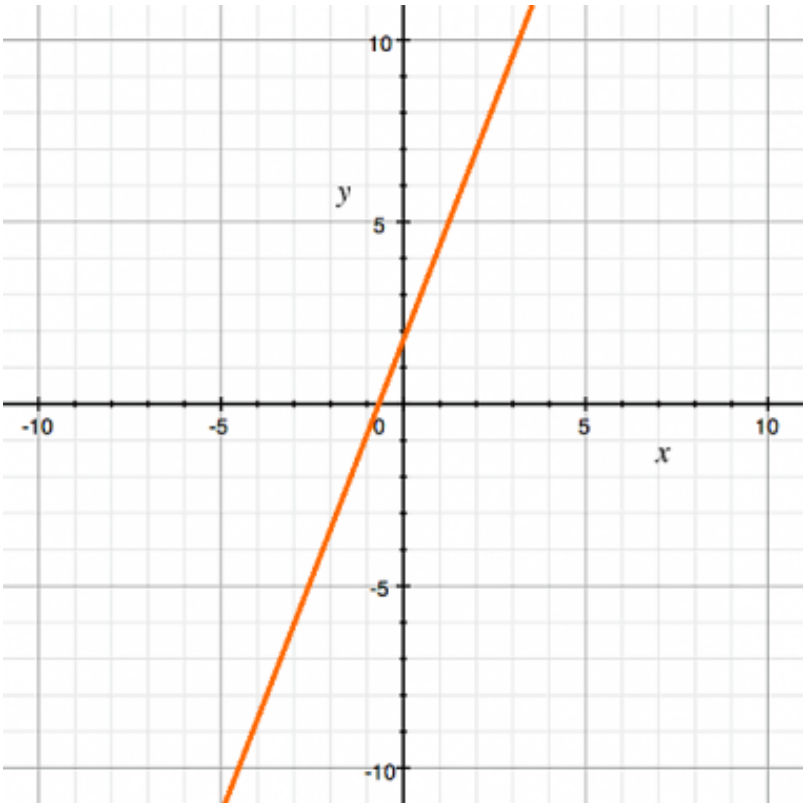
1)

x	y
2	2
3	4
4	6
5	8

Which set of values in the RANGE corresponds to the set {2,4,5} in the DOMAIN?

A) {2,3,8}
B) {2,4,5}
C) {2,4,6}
D) {2,6,8}

2)



Which is the MOST reasonable estimate of the *y*-intercept for this linear graph?

A) -1.7
B) -0.6

C) 0.6
D) 1.7

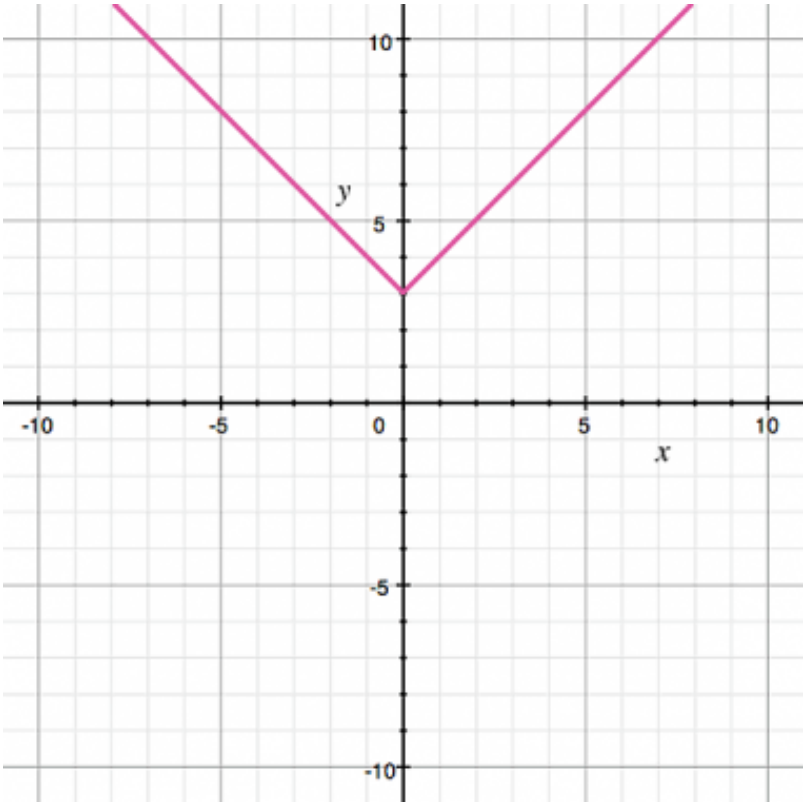
3)

{(3,2), (-6,2), (7,3), (8,4)}

What is the range of this function?

A) {2, 3, 4}
B) {7, 3, 8, 4}
C) {3, -6, 7, 8}
D) {3, 2, -6, 2}

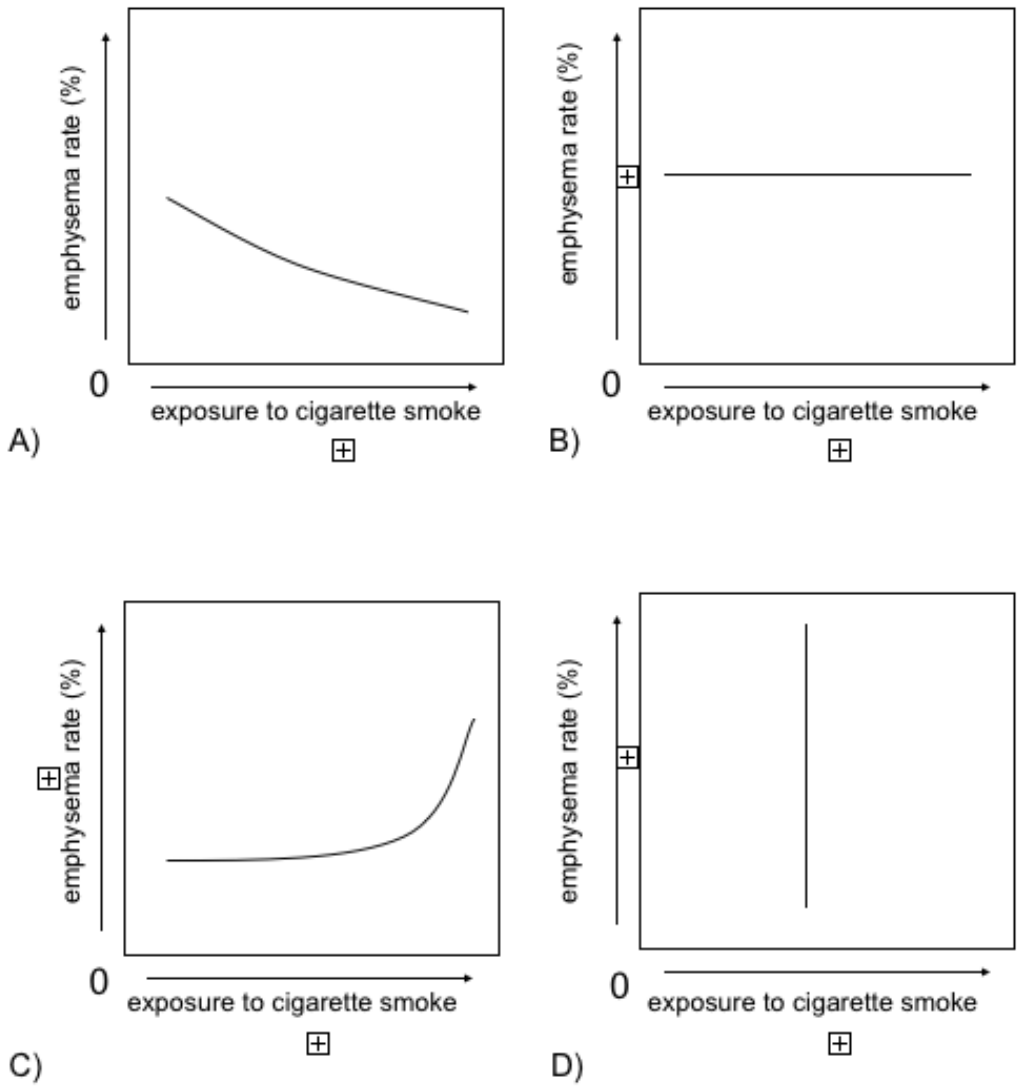
4)



The graph of the function y = | x | + 3 is shown. What is its range?

A) y > 3
B) y < 3
C) y ≥ 3
D) y ≤ 3

5)



Which graph indicates that increasing exposure to cigarette smoke increases the risk of emphysema? Justify your reasoning in terms of the behavior of the dependent and independent variables.

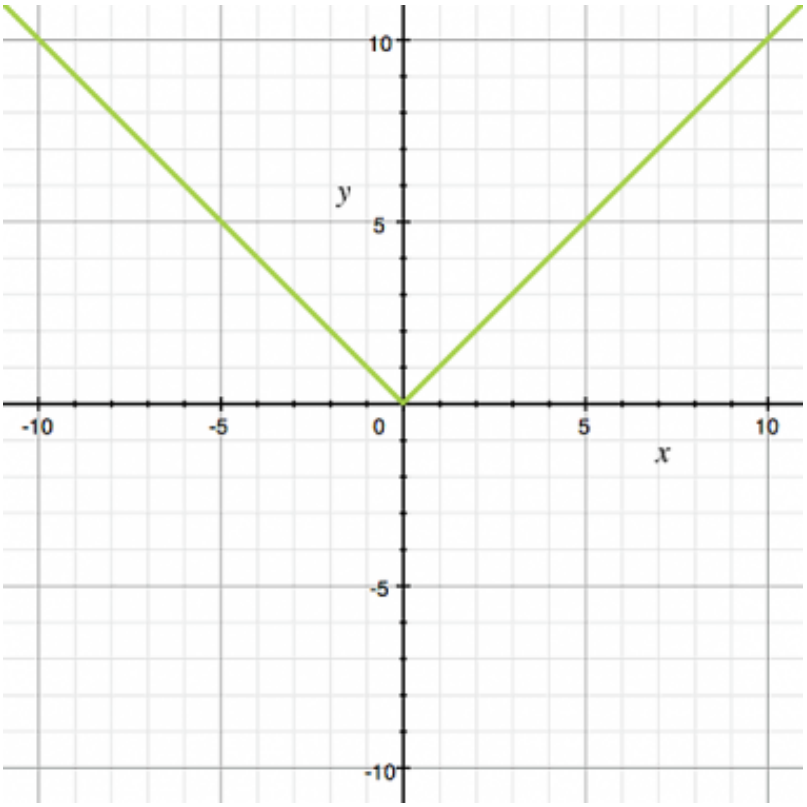
A) B: The dependent variable remains constant.

B) D; The independent variable remains constant.

C) C; As the independent variable increases, the dependent variable increases.

D) A; As the independent variable increases, the dependent variable decreases.

6)



Which sentence best describes the function shown?

A) The function is odd.
B) The function is even.
C) The function is symmetric about the x-axis.
D) The function is symmetric about the origin.

7)

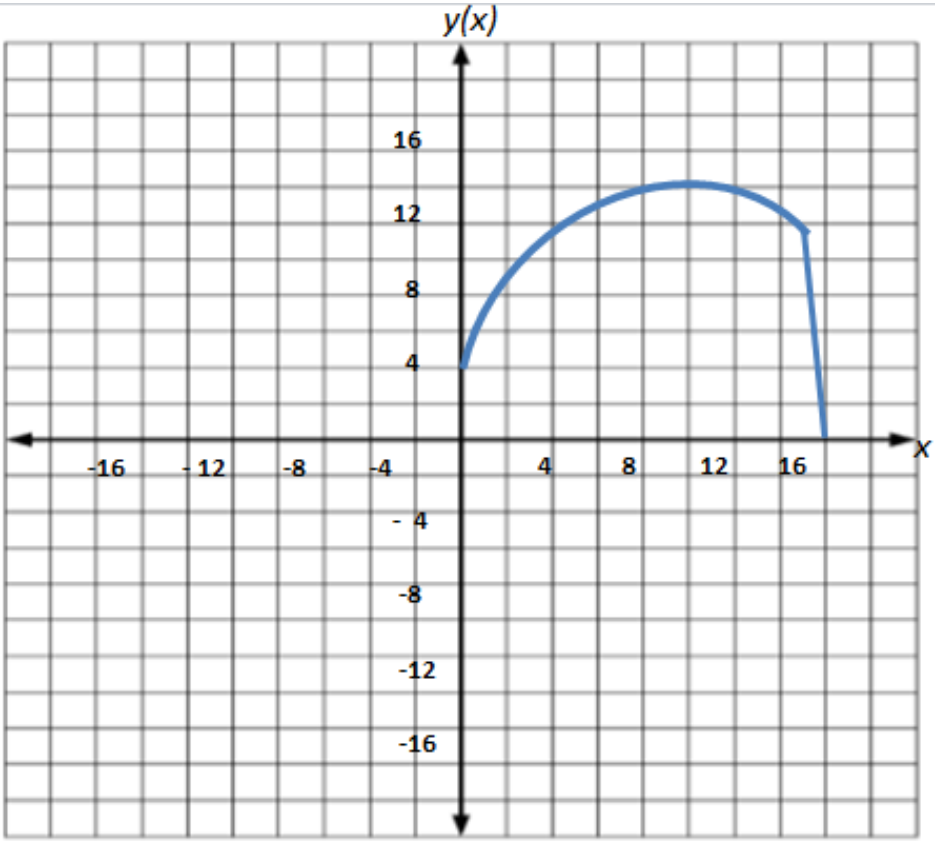
Velocity

t	V(t)
0	12
4	8.6
8	6.4
12	3.7
16	1.8
20	0.5

Jack decides to coast to a stop on his bicycle, so he quits pedaling. The table represents his velocity (in meters per second) as a function of time (in seconds). According to the table, which point is the y-intercept on a graph representing the data?

A) (0, 0)
B) (0, 12)
C) (12, 0)
D) (0, 20)

8)



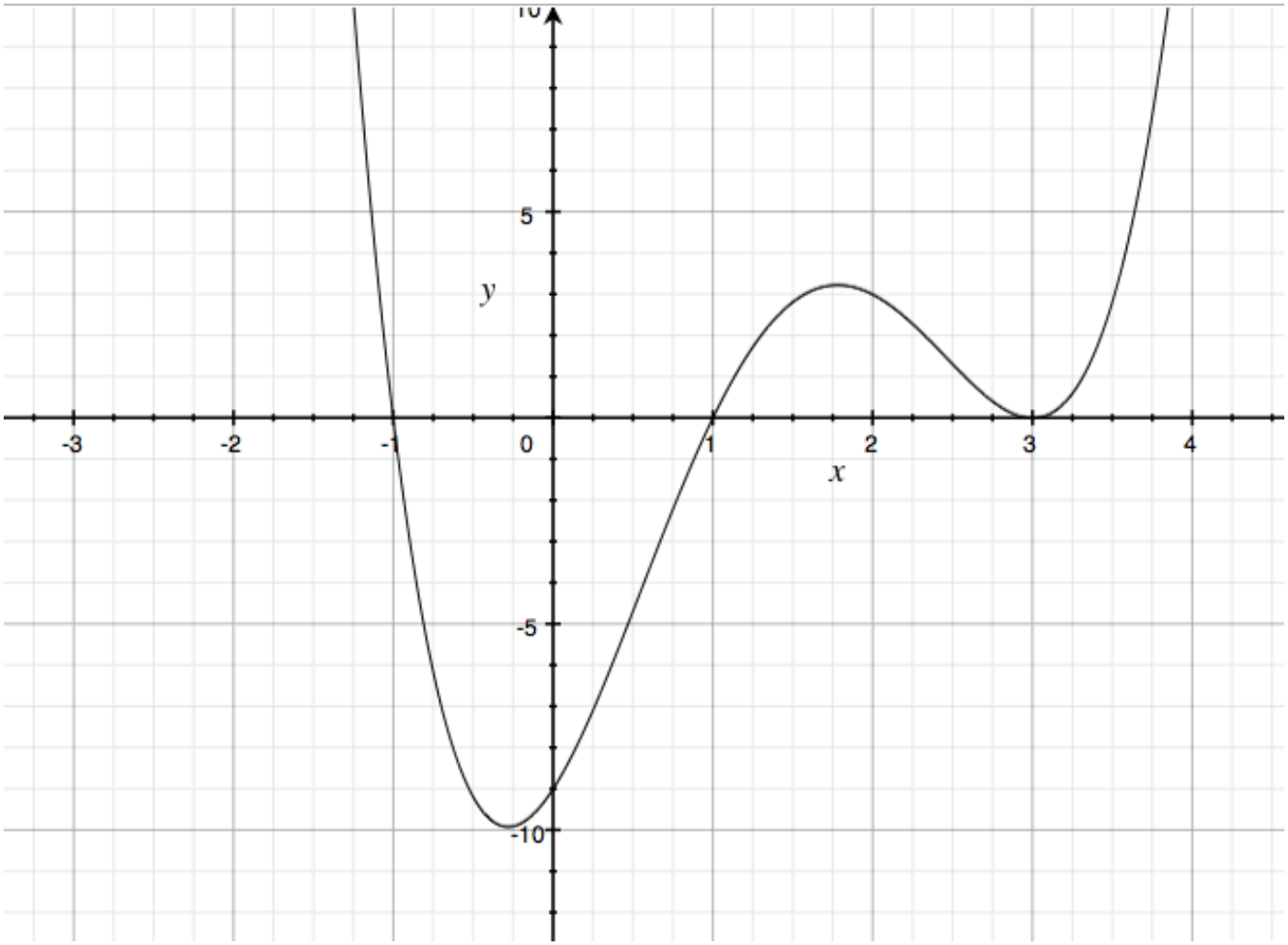
Joey, who is 8 years old, is a star player for his school's basketball team. His latest shot is shown on the graph, which represents the height of the basketball as a function of the horizontal distance. The unit of measurement is feet. What is the significance of the point (0, 4) on the graph?

A) Joey caught the ball from a height of 4 feet.
B) Joey released the ball from a height of 4 feet.
C) Joey threw the ball a horizontal distance of 4 feet.
D) The lowest point of the ball on the graph is 4 feet.

9) What is the range of $f(x) = -x^2 + 4$, if the domain is {2,0,1}?

A) {0,3,5}
B) {0,4,3}
C) {0,4,5}
D) {8,4,3}

10)



How can you tell the zeros of this function by looking at the graph? What are the zeros of the function?

A) Zeros occur at the minimum value. On this graph the zero is -10.

B) Zeros occur where the graph intercepts the y-axis. On this graph the only zero is -9.

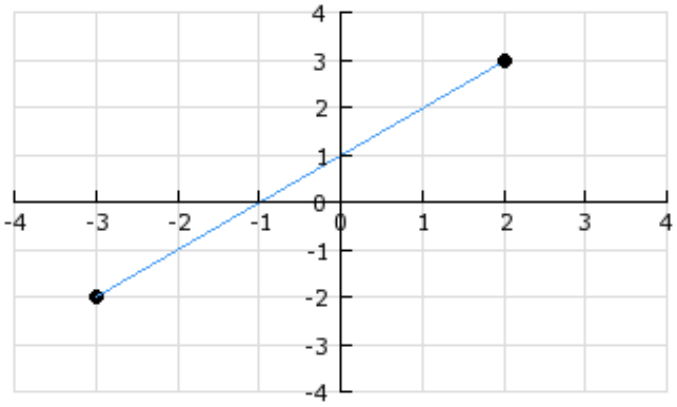
C) Zeros occur where the graph intercepts the x-axis. On this graph the zeros are -1, 1, and 3.

D) Zeros occur where the graph intercepts the x-axis. On this graph the zeros are -1, 0, 1, and 3.

11) Rob is saving money for a down payment on a house. He opens a savings account at his local bank and deposits $1000. He models his savings plan with the equation y = 400x + 1000 based on his current income and monthly savings rate. What is the meaning of the y-intercept in the equation?

A) largest amount that he can save
B) date when he will have enough saved
C) date his savings account was started
D) starting amount in his savings account

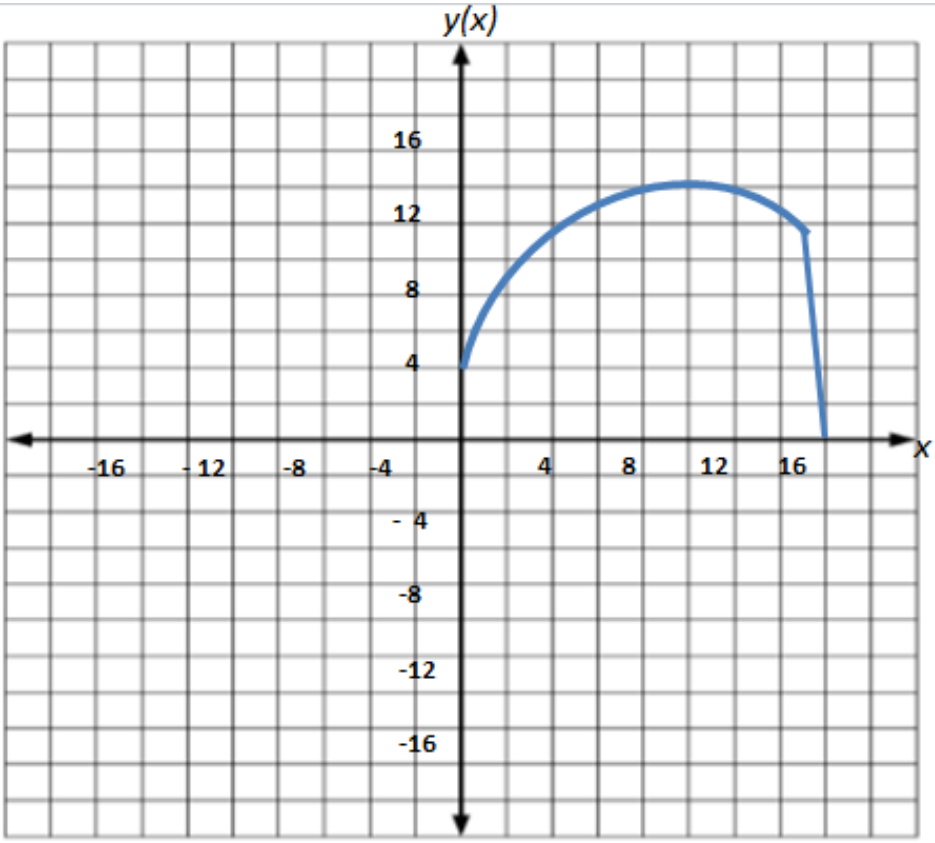
12)



What is the range for the graph shown?

A) $-3 \leq y \leq 2$
B) -3 and 2
C) $-3 \leq y \leq 3$
D) $-2 \leq y \leq 3$

13)



The graph represents the height of a basketball as a function of horizontal distance. The unit of measurement is feet. What is the best estimate for the interval where the function is decreasing?

A) When the basketball's horizontal distance was between 0 and 10 feet.
B) When the basketball's horizontal distance was between 5 and 11 feet.
C) When the basketball's horizontal distance was between 9 and 17 feet.
D) When the basketball's horizontal distance was between 11 and 17 feet.

14) Steven works at a large home appliance store. He earns a base salary of $20,000 plus commission which can be modeled by the equation y = 0.1x + 20,000. What is the meaning of the y-intercept in the equation?

A) Steven's base pay
B) Steven's total sales
C) Stevens commission pay
D) highest pay Steven can earn

15) What is the end behavior of the graph of $f(x) = -0.25x^2 - 2x + 1$?

A) As x increases, f(x) increases.
As x decreases, f(x) decreases.
B) As x increases, f(x) decreases.
As x decreases, f(x) decreases.
C) As x increases, f(x) increases.
As x decreases, f(x) increases.
D) As x increases, f(x) decreases.
As x decreases, f(x) increases.

16)

Velocity

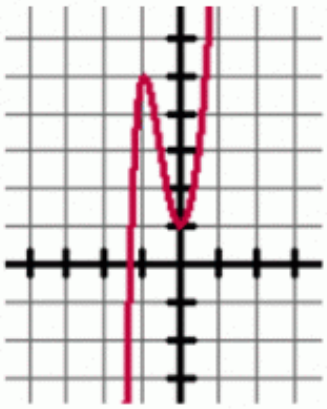
t	V(t)
0	12
4	8.6
8	6.4
12	3.7
16	1.8
20	0.5

Jack decides to coast to a stop on his bicycle, so he quits pedaling. The table represents his velocity (in meters per second) as a function of time (in seconds). Which statement best describes the significance of V(t) having a value of zero?

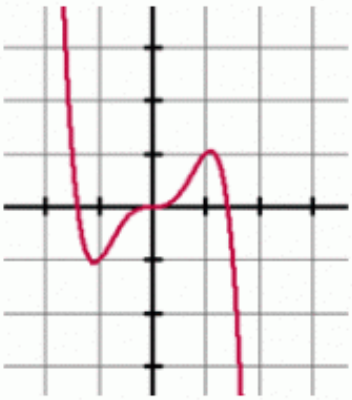
A) Jack has coasted for 20 seconds.
B) Jack's bicycle will not be moving.
C) Jack is pedaling his bicycle again.
D) Jack has traveled at least 200 meters.

17)

A.



B.



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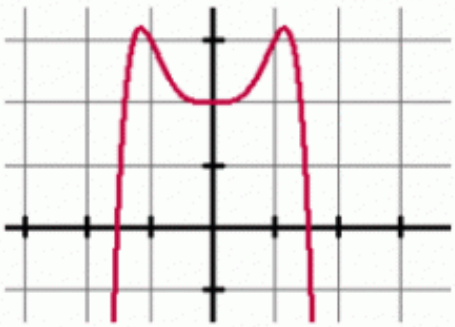
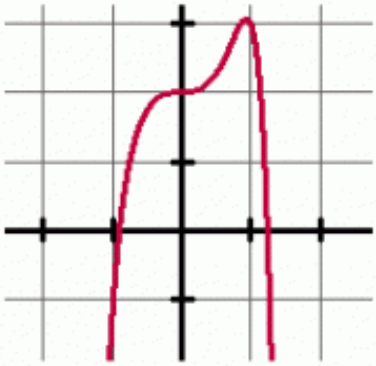


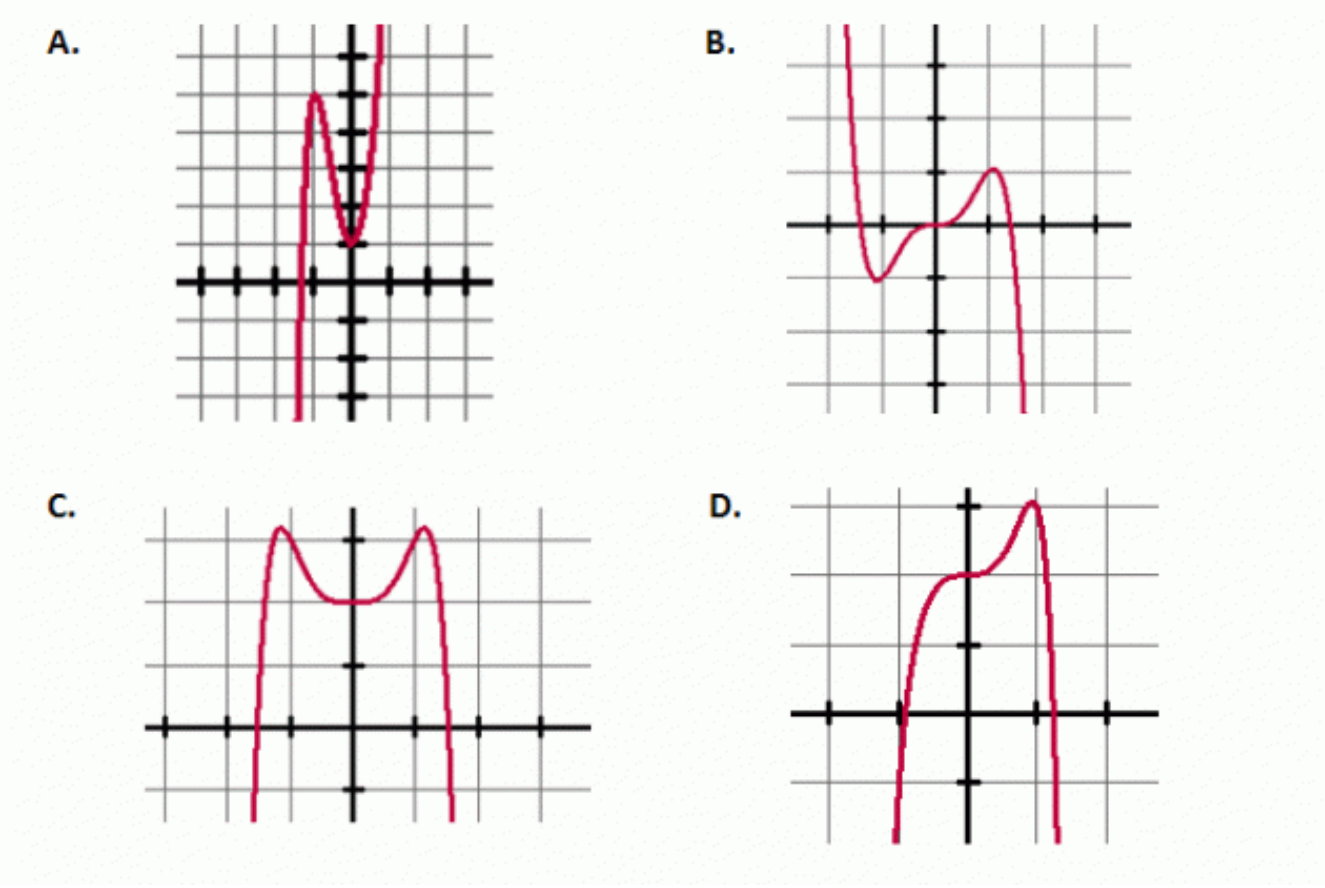
D.



Several polynomial functions are graphed. Which graph displays a polynomial function with all even exponents?

A)
B)
C)
D)

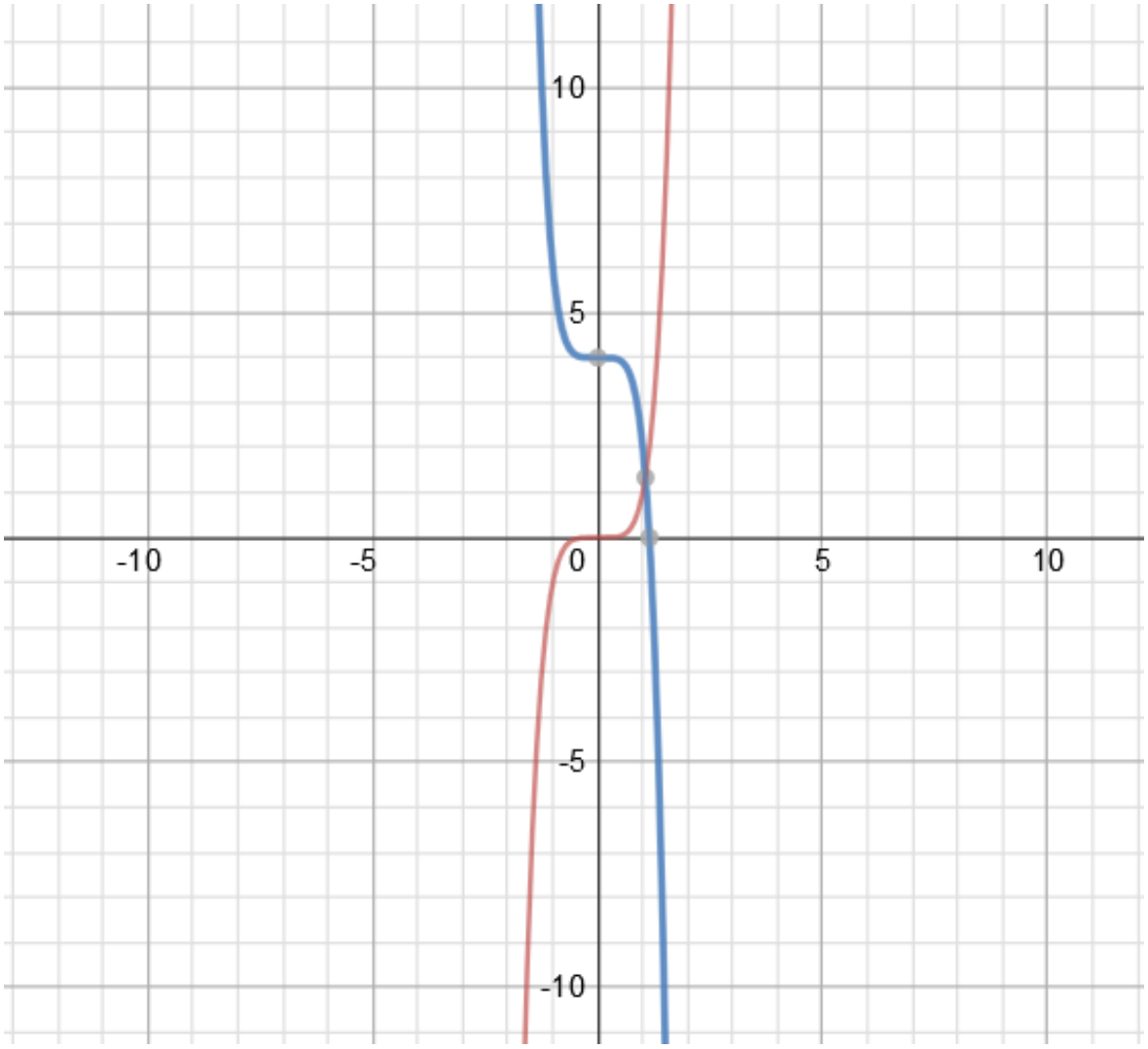
18)



Several power functions are graphed. Which graph displays a power function with only odd exponents?

A)
B)
C)
D)

19)



The red graph represents $P(x) = x^5$. Which polynomial function could represent the transformed curve shown in blue?

A) $P(x) = 2x^5 + 4$
B) $P(x) = 2x^5 - 4$
C) $P(x) = -2x^5 + 4$
D) $P(x) = -2x^5 - 4$

20) Consider $P(x) = x^4(x - 2)^3(x + 1)^2$. What are the zeros of the function? What is the multiplicity of each zero?

A) 0, multiplicity of 4; 2, multiplicity of 3; −1, multiplicity of 2
B) 0, multiplicity of 4; −2, multiplicity of 3; 1, multiplicity of 2
C) 0, multiplicity of 4; −2, multiplicity of 3
D) 2, multiplicity of 3; −1, multiplicity of 2

21) Consider $P(x) = x^4(x - 2)^3(x + 1)^2$. For each zero, determine if the graph crosses the x-axis. How do you know?

A) The behavior of the graph at 0 cannot be determined. The graph crosses the x-axis at −1 and 2 because the degree of the polynomial is even.

B) The zeros at 0 and −1 do not cross the x-axis because they have even multiplicity. The zero at 2 crosses the x-axis because it has odd multiplicity.

C) The zeros at 0 and −1 cross the x-axis because they have even multiplicity. The zero at 2 does not cross the x-axis because it has odd multiplicity.

D) The zeros at 0 and −1 do not cross the x-axis because they have odd multiplicity. The zero at 2 crosses the x-axis because it has even multiplicity.

22) Aster sells used cars. She earns no base pay, but is paid a commission of 25% for each car sold which can be modeled by the equation y = 0.25x, where x represents the total dollar amount of car sales. What is the meaning of the x-intercept in the equation?

A) Aster's percentage of the sales

B) amount of earned raised with no sales

C) Used car company's percentage of sales

D) amount of sales when no money has been earned

23) Determine the end behavior of $P(x) = -3x^4 + 5x^3 + 4x - 7$.

A) $y \to \infty$ as $x \to \infty$ and $y \to -\infty$ as $x \to \infty$

B) $y \to \infty$ as $x \to -\infty$ and $y \to -\infty$ as $x \to \infty$

C) $y \to -\infty$ as $x \to -\infty$ and $y \to \infty$ as $x \to \infty$

D) $y \to -\infty$ as $x \to -\infty$ and $y \to -\infty$ as $x \to \infty$

24)

Which statement about the graph is FALSE?

A) The graph has one local extrema

B) The graph has no local maximum.

C) The graph has two local extrema.

D) The graph has one local minimum.

25) Molly graphed the function $f(x) = (x - 1)^2 (x + 2)^3$. Molly's graph shows that as $x \to -\infty$, $y \to -\infty$ and as $x \to \infty$, $y \to \infty$. Is Molly's

graph correct? Justify your answer.

A) It cannot be determined without looking at the graph.
B) Molly is correct because the function has a sum and a difference as factors.
C) Molly is incorrect because the function has an even degree and an odd degree as factors.
D) Molly is correct because the function represents an odd degree with a positive leading coefficient.