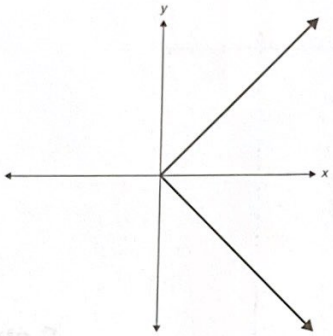
Practice More on Functions; Other Graphical Representations

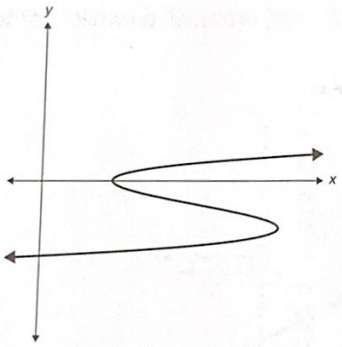
Answers begin on page 668.

1. Which of the following graphs represents a function?

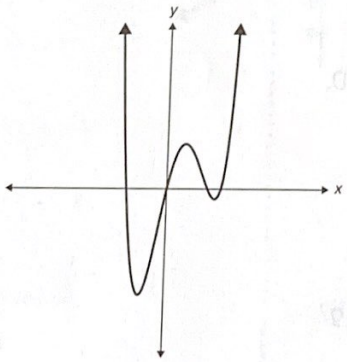
A)



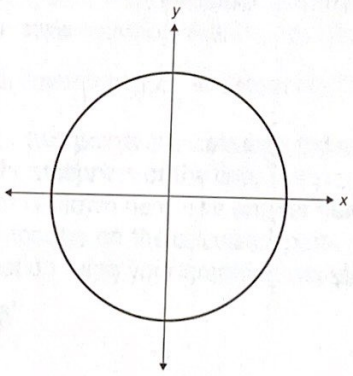
B)



C)



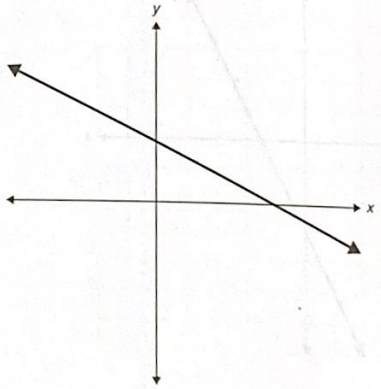
D)



2. If the graph of the function $f(x) = mx + b$, where m and b are constants, is shifted down a units to create a new function h, what is the equation of h? (Note that a is a constant.)

A) $h(x) = mx - b + a$
B) $h(x) = mx + b - a$
C) $h(x) = ax + b$
D) $h(x) = ax + mb$

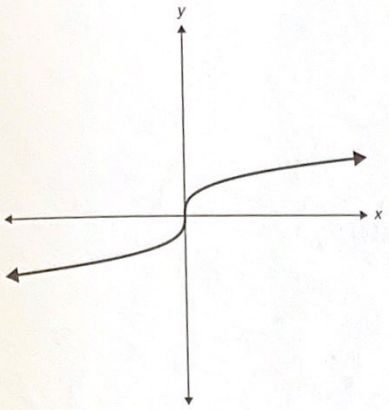
3. Which of the following best describes the given graph?



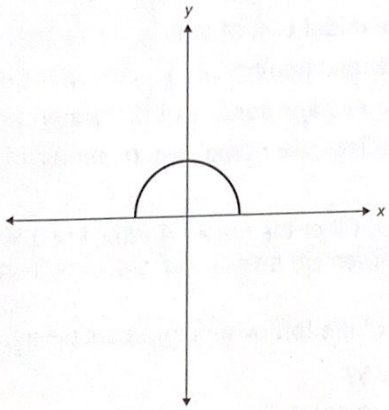
A) Positive slope; y-intercept of $(0, 2)$.
B) Negative slope; x-intercept of $(4, 2)$.
C) Negative slope; x-intercept of $(4, 0)$.
D) Positive slope; y-intercept of $(0, 4)$.

4. Which of the given graphs does not represent a function?

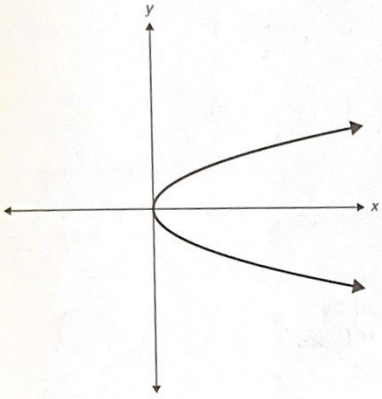
A)



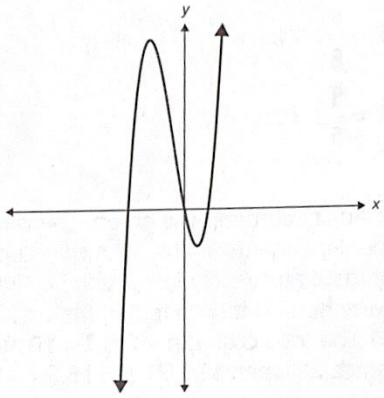
B)



C)

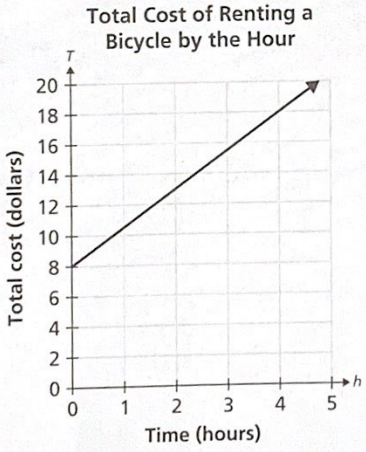


D)



Model SAT Questions

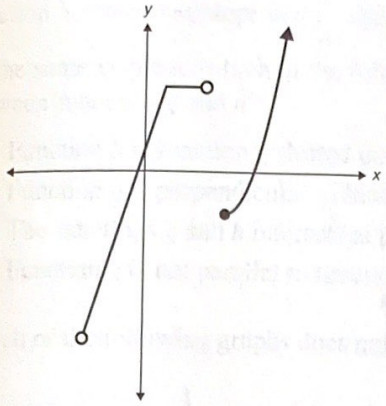
Questions 1 and 2 refer to the following information.



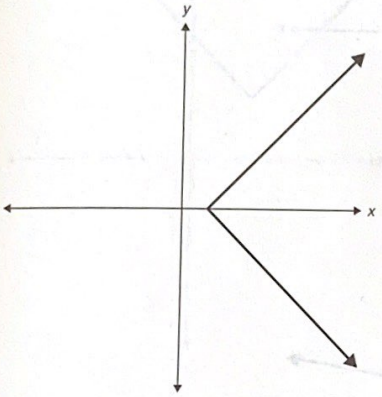
The graph above displays the total cost, T, in dollars, of renting a bicycle for h hours.

5. Which one of the following graphs does not represent a function?

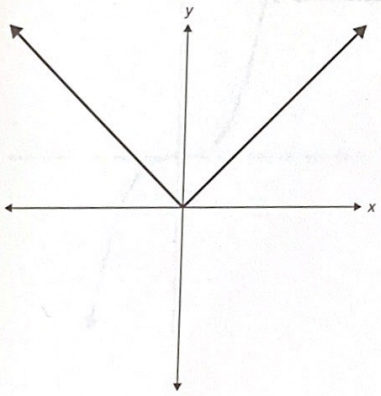
A)



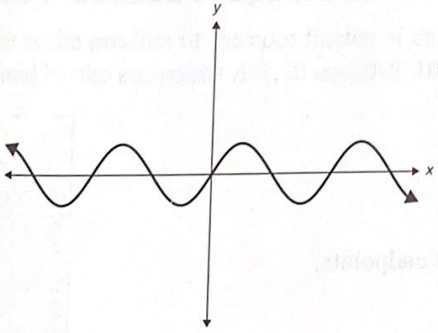
B)



C)



D)

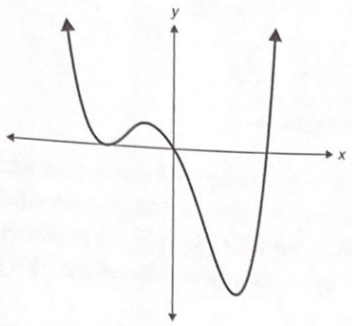


6. If the coordinates of two adjacent corners of a square are at $A(4, 2)$ and $B(7, 6)$, what is the length of a side of the square?

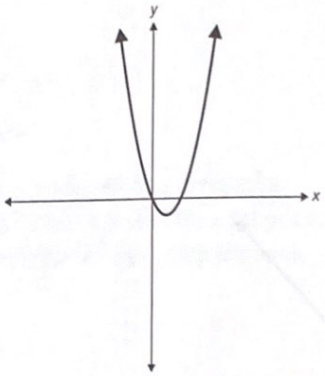
A) 2.5
B) 5
C) $5\sqrt{2}$
D) $5\sqrt{3}$

7. Which of the following graphs represents a one-to-one function?

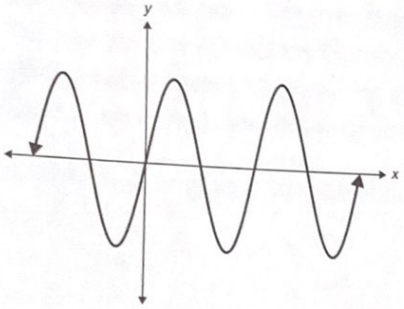
A)



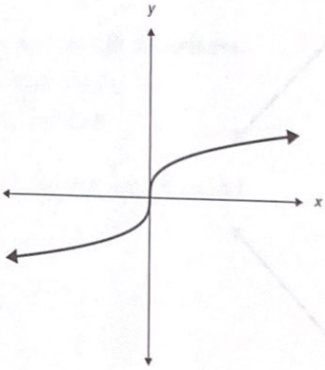
B)



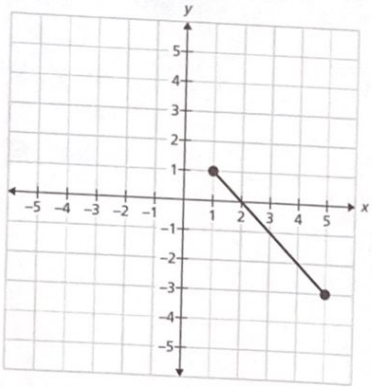
C)



D)



8. Examine the graph below.



If a line perpendicular to this segment is drawn through one of the endpoints, which of the following could be the equation of that line?

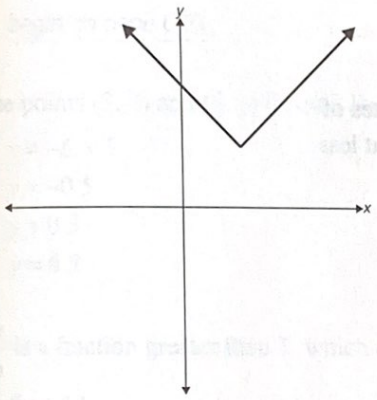
A) $x - y = 2$
B) $-y = 2x + 4$
C) $y - x = -8$
D) $4x - y = 7$

9. If the function g, which has slope $m = -4$ and contains the point $(1, -3)$, and the function h, which has slope $m = \frac{1}{4}$ and contains the point $(1, 1)$, are both graphed on the same xy-plane, which of the following is not true about the relationship between functions g and h?

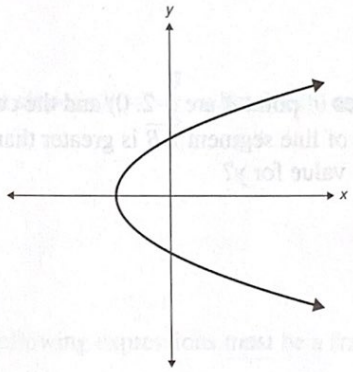
A) Function h is function g shifted down 4 units.
B) Function g is perpendicular to function h.
C) The functions g and h intersect at point (x, y).
D) Function g is not parallel to function h.

10. Which of the following graphs does not represent a function?

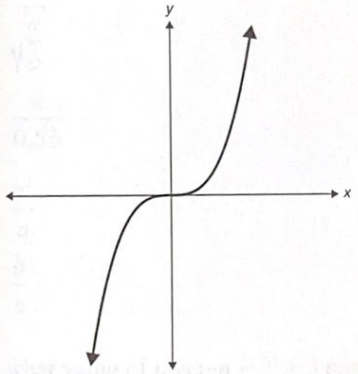
A)



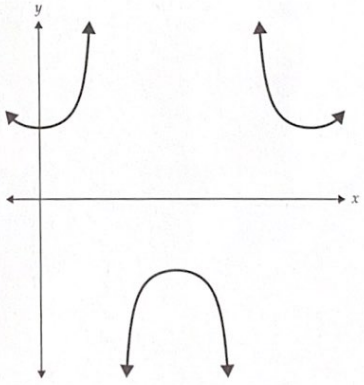
B)



C)

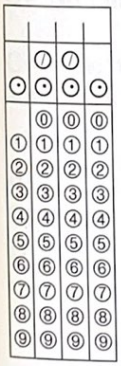


D)

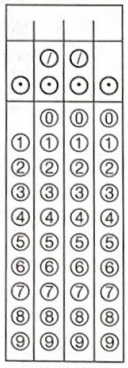


Student-Produced Response Questions

11. What is the product of the coordinates of the midpoint of the line segment defined by the endpoints $A(1, 2)$ and $B(6, 10)$?



12. If one endpoint of a line segment $\overline{AB}$ is $(-5, 2)$, and the midpoint is $(2, -5)$ what is the x-coordinate of the other endpoint?



13. In the xy-plane, the coordinates of point A are $(-2, 0)$ and the coordinates of point B are $(1, y)$. If the slope of line segment $\overline{AB}$ is greater than 0.4 but less than 0.5, what is one possible value for y?