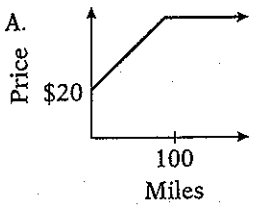
PRACTICE SAT QUESTIONS

1. $f(x) = 2x^3 - 3x^2 + 5, f(4) =$
   A. 81
   B. 82
   C. 83
   D. 84
   E. 85

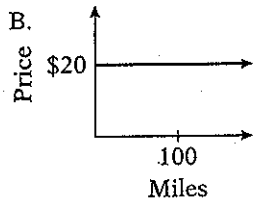
2. If $f(x)$ is a linear function such that $f(2) = 5$ and $f(4) = 13, f(x) =$
   A. $f(x) = 3x - 4$
   B. $f(x) = 4x - 3$
   C. $f(x) = 4x + 3$
   D. $f(x) = \frac{1}{4}x + \frac{9}{2}$
   E. $f(x) = \frac{1}{4}x - \frac{9}{2}$

3. A truck rental company charges \$20 for a truck rental plus \$0.15 for every mile over 100 miles. Which of the following graphs best represents the cost for renting a truck?

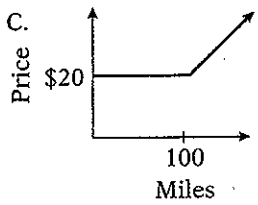
A.



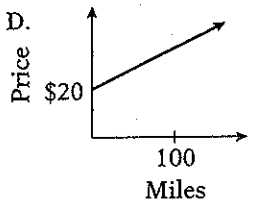
B.



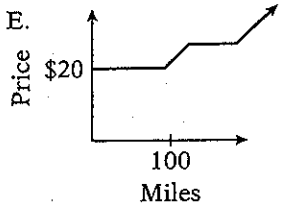
C.



D.

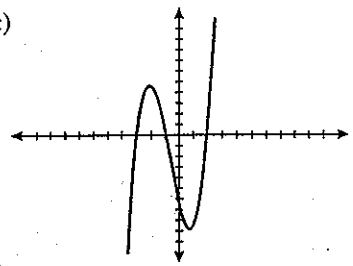


E.

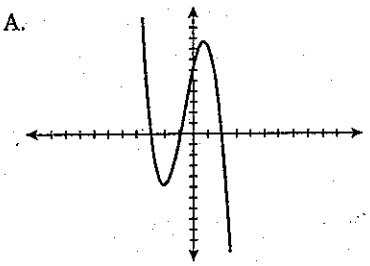


4. The graph of $f(x)$ is seen below. Which of the following choices is the graph of $f(x - 2) + 4$?

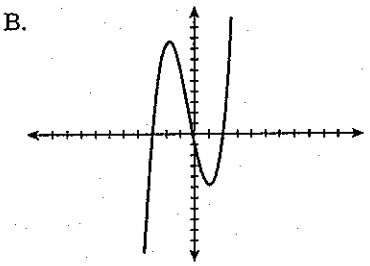
Graph of $f(x)$



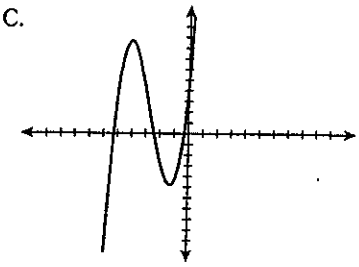
A.



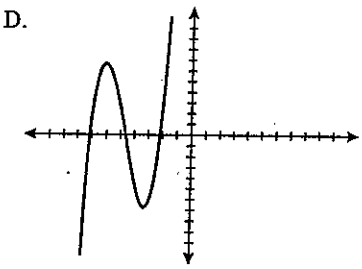
B.



C.



D.



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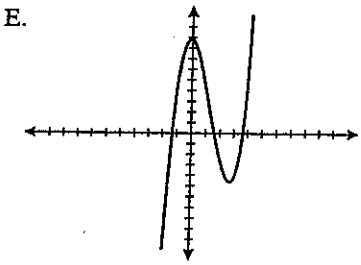


5. What is the range of $f(x) = (x+2)^2 - 3$?
   A. All real numbers greater than or equal to 3
   B. All real numbers greater than or equal to 2
   C. All real numbers greater than or equal to –3
   D. All real numbers greater than or equal to –2
   E. All real numbers greater than or equal to –1

6. What is the domain of $f(x) = \sqrt{x+3} - 7$?
   A. All real numbers greater than or equal to 3
   B. All real numbers greater than or equal to 2
   C. All real numbers greater than or equal to –3
   D. All real numbers greater than or equal to –2
   E. All real numbers greater than or equal to –1

7. $f(x) = 2x - 4$. If $f(x) = 8$ then $x =$

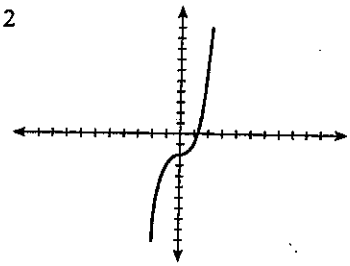
8. $f(x) = 3x^2 - 7$ and $g(x) = 2x^3 - 4x + 2$. $g[f(2)] =$

9. What is the range of the function $f(x) = \dfrac{2}{x-2}$?
   A. All real numbers greater than 0
   B. All real numbers greater than 2
   C. All real numbers except 0
   D. All real numbers except 2
   E. All real numbers less than 0

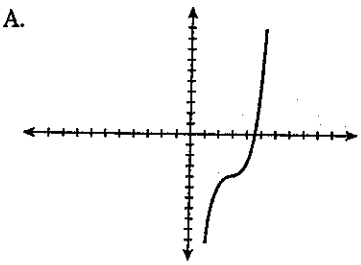
10. The equation of a line is $y = \dfrac{2}{3}x - 6$. What is the equation of a line perpendicular to this line and with the same y-intercept?
    A. $y = \dfrac{2}{3}x + 6$
    B. $y = \dfrac{2}{3}x - \dfrac{1}{6}$
    C. $y = \dfrac{3}{2}x - 6$
    D. $y = -\dfrac{2}{3}x + 6$
    E. $y = -\dfrac{3}{2}x - 6$

11. The graph of $f(x) = x^3 - 2$ is shown below. Which of the following choice is the graph of $g(x) = (x+3)^3 - 6$?

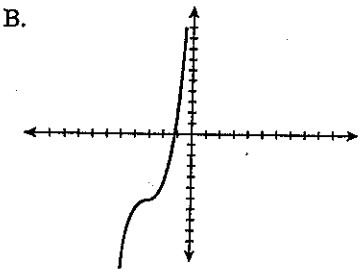
Graph of $f(x) = x^3 - 2$



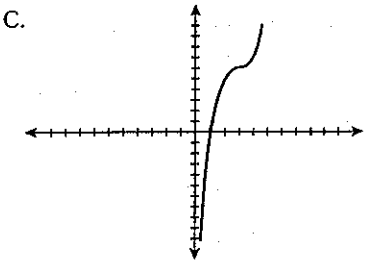
A.



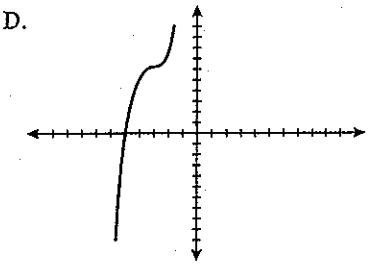
B.



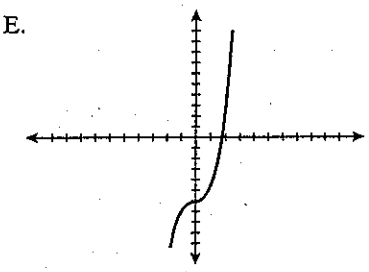
C.



D.

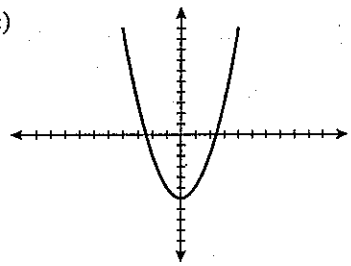


E.

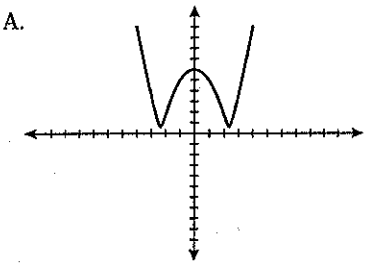


12. The graph of $f(x)$ is shown below. Which of the following choices is the graph of $|f(x)|$?

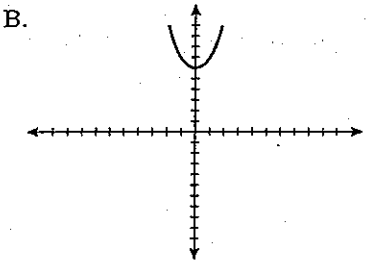
Graph of $f(x)$



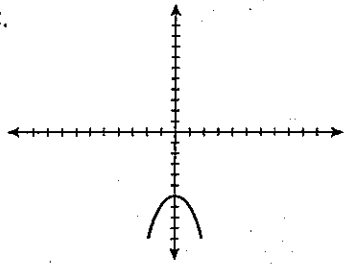
A.



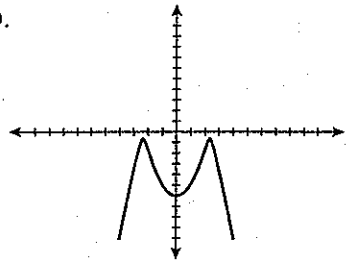
B.



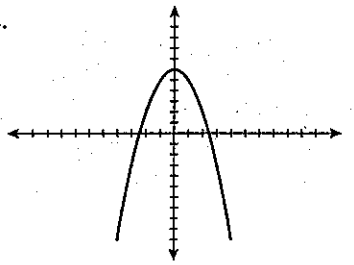
C.



D.

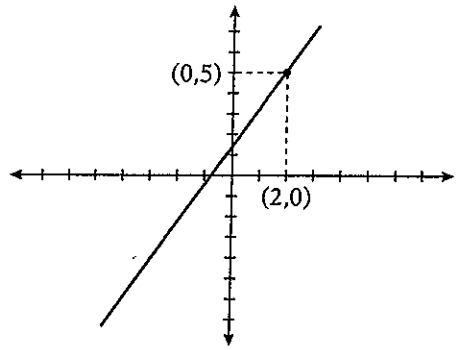


E.



13. Carolyn works at an accounting firm. Her starting salary was \$1,000 per week. She received a 7% raise each year. At this raise increase, what will her weekly salary be, rounded to the nearest dollar, after 10 years?

14. The slope of the line below is $\frac{3}{2}$. What is the y-intercept?



15. The fish population in a lake triples every year for 6 years. If the final population is 3,645, what was the initial fish population?

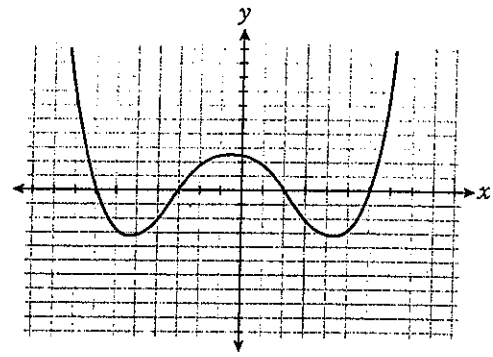
16. What is the domain of $f(x) = \frac{4}{x^2 + x - 6}$?

A. All real numbers except 4
B. All real numbers except 0
C. All real numbers except 6
D. All real numbers except 4 and 6
E. All real numbers except –3 and 2

17. The cost of operating a Frisbee company in the first year is \$10,000 plus \$2 for each Frisbee. Assuming the company sells every Frisbee it makes in the first year for \$7, how many Frisbees must the company sell to break even?

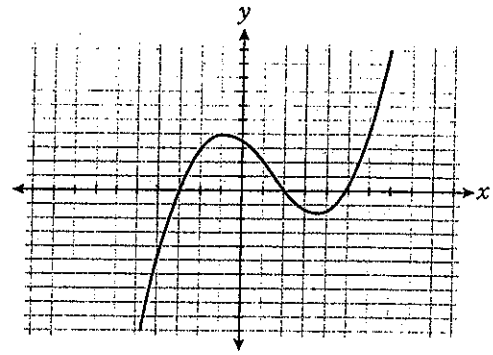
A. 1,000
B. 1,500
C. 2,000
D. 2,500
E. 3,000

18. The graph of $f(x)$ is shown below, $f(3) =$



A. 2
B. 1
C. 0
D. –1
E. –2

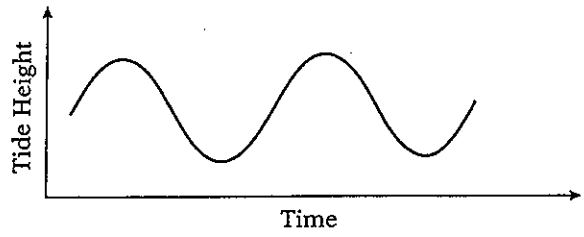
19. The graph of $f(x)$ is shown below. If $f(x) = 0$, $x =$



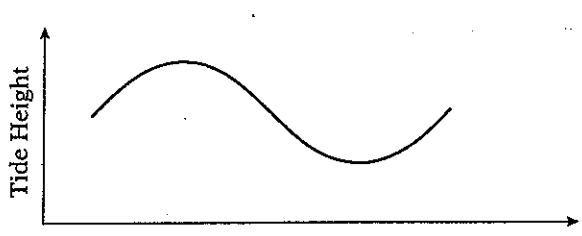
A. 3
B. 2
C. 0
D. –1
E. –2

20. The water level in a bay changes with the tides. The tides go through a full cycle every 12 hours, with one low and one high tide. Which of the following graphs shows the water level in the bay during a 24-hour period starting with the high tide?

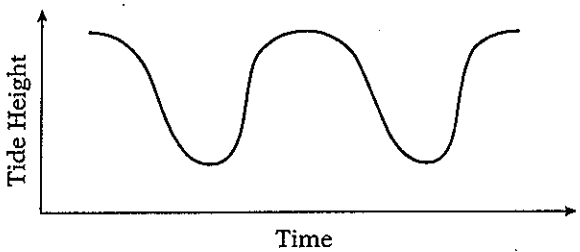
A.



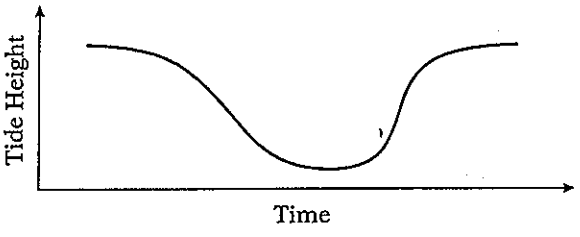
B.



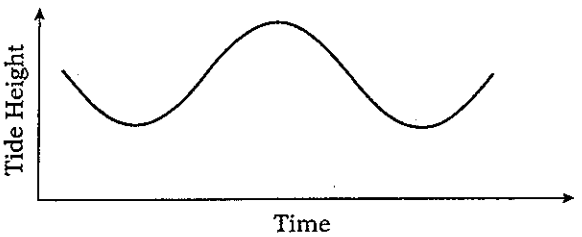
C.



D.



E.



21. $f(5) = 15$ and $g(x) = f(x+2) - 5$. $g(3) =$