



MATHS

BOOKS - KAPLAN INC MATHS (ENGLISH)

FUNCTIONS AND FUNCTION NOTATION

Multiple Choice Question

1. If $f(x) = x^2 + 6$, what is the value of $f(3)$?

A. 15

B. 33

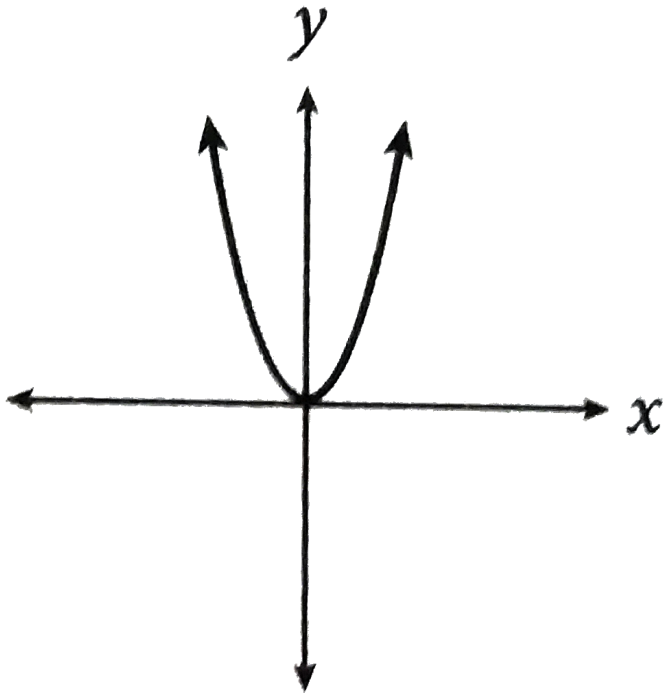
C. 39

D. 729

Answer: B

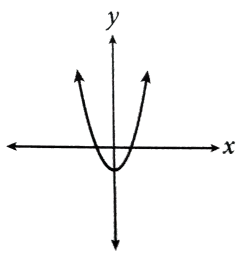


Watch Video Solution

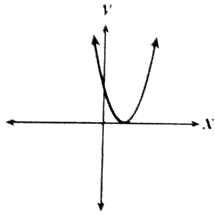


2.

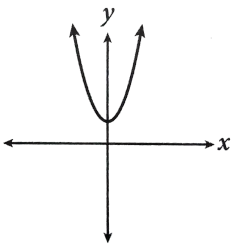
If the above graph shows $f(x) = 7x^2$, which of the following is the graph of $f(x) = 7x^2 + 11$?



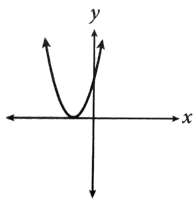
A.



B.



C.



D.

Answer: C



Watch Video Solution

3. If $g(x)$ represents a quadratic function, which of the following best describes the relationship between the graphs of $g(x)$ and $g(x - 3)$?

A. The graph of $g(x-3)$ is 3 units to the left of the graph of $g(x)$.

B. The graph of $g(x-3)$ is 3 units to the right of the graph of $g(x)$.

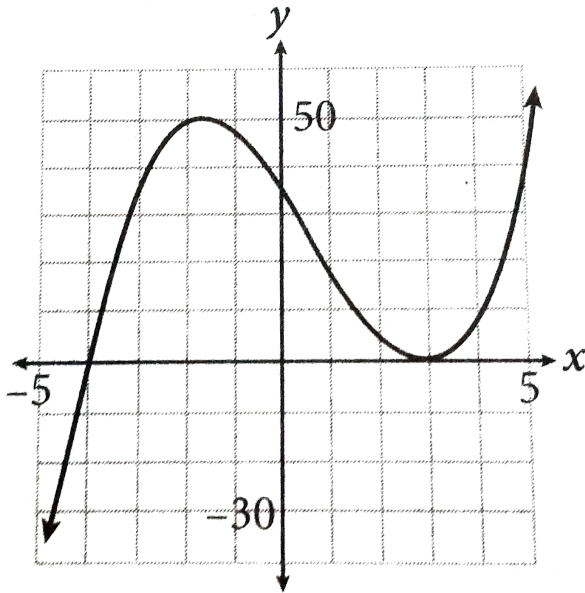
C. The graph of $g(x-3)$ is 3 units lower than the graph of $g(x)$.

D. The graph of $g(x-3)$ is 3 units higher than the graph of $g(x)$.

Answer: B



Watch Video Solution



4.

If $p(x)$ is the polynomial functions shown in the graph above, which of the following could be factored form of $p(x)$?

A. $p(x) = (x - 4)(x + 3)$

B. $p(x) = (x - 4)(x + 3)^2$

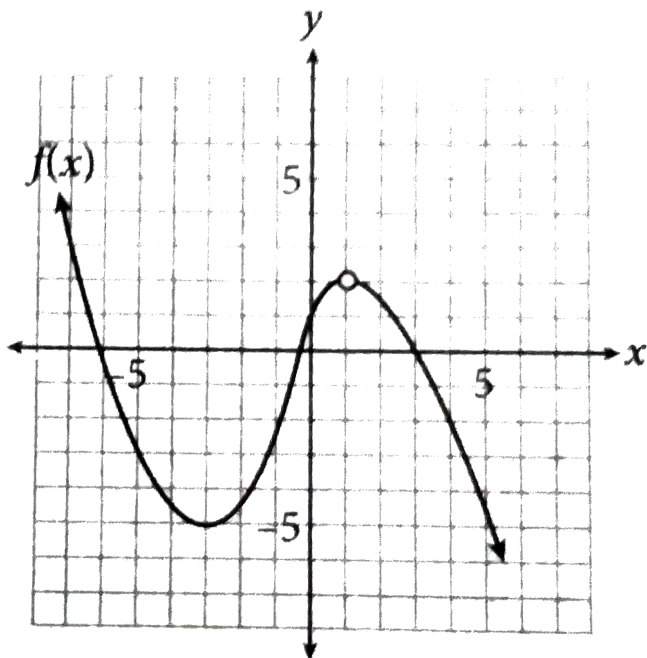
$$C. p(x) = (x + 4)(x - 3)$$

$$D. p(x) = (x + 4)(x - 3)^2$$

Answer: D



Watch Video Solution



5.

The graph of $y=f(x)$ is given above. For what value of x is $y=f(x-4)$ undefined?

A. -3

B. 1

C. 2

D. 5

Answer: D



Watch Video Solution

6. If $f(x) = |x^2 + 2x + 1|$, what is the value of $f(-4)$?



Watch Video Solution

$$7. f(s) = \frac{s}{25} + 1$$

A collage campus has vending machines which must be periodically restocked. The restocking frequency depends primarily on how many students have class near the machine each semester. The vending machine company uses the function shown above, where s is the number of students estimated to have classes within the immediate vicinity on a daily basis, to determine how many times per semester the machine must be restocked. How many more times must a vending machine

that has 400 students in the immediate vicinity be restocked compared to one that has 300 students in the immediate vicinity?

A. 2

B. 4

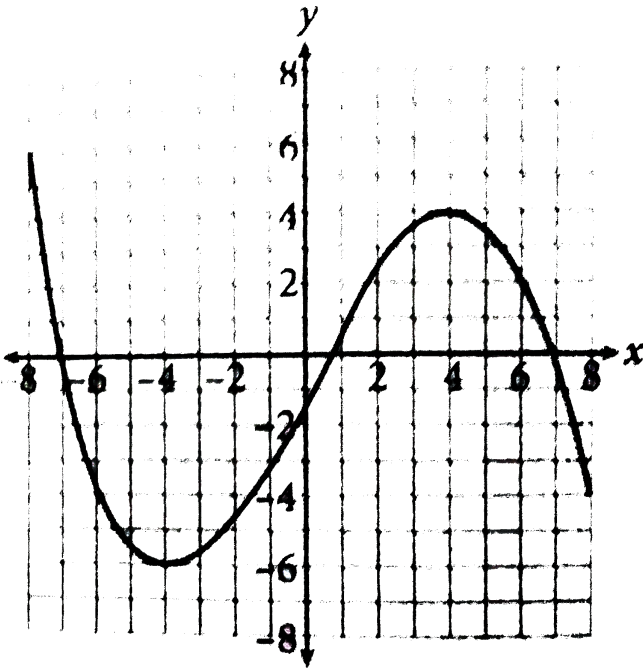
C. 7

D. 13

Answer: B



Watch Video Solution



8.

What is the maximum value of the functions graphed on the coordinate plane above, over the interval $-8 \leq x \leq 8$?

A. 4

B. 6

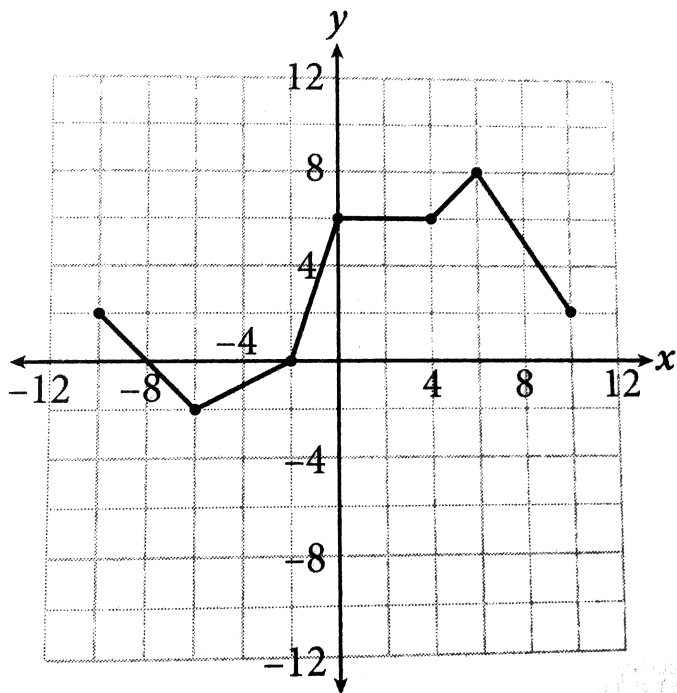
C. 8

D. ∞ (infinity)

Answer: B



Watch Video Solution



9.

The complete graph of the function h is shown in the xy plane above. For what value of x is the value of $h(x)$ at its maximum?

A. 5

B. 6

C. 8

D. 10

Answer: B



Watch Video Solution

10. $g(x) = \frac{x}{x-2}$ and $h(x) = \sqrt{9-x}$

Given of the following defined above, what is the value of $(g \circ h)(5)$?

A. 0

B. $\frac{8}{7}$

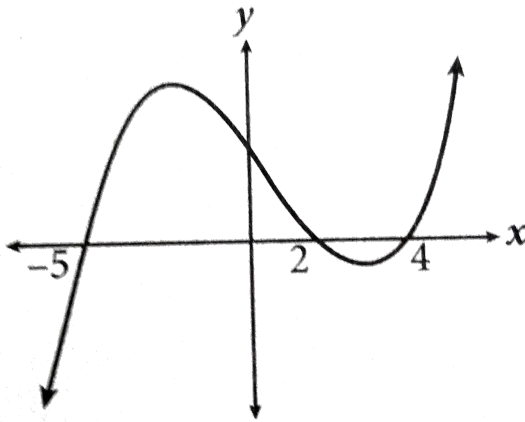
C. 2

D. Undefined

Answer: D



Watch Video Solution



11.

The polynomial function shown in the graph crosses the x-axis at

$x = -5$, $x = 2$ and $x = 4$. If the equation

for this polynomial is written in the form

$y = ax^3 + bx^2 + cx + d$, with $a=1$, which of

the following could be the equation?

A. $y = x^3 - x^2 - 38x - 40$

B. $y = x^3 + x^2 - 22x - 40$

C. $y = x^3 - x^2 - 22x + 40$

D. $y = x^3 + 5x^2 + 8x + 40$

Answer: C



Watch Video Solution

12. If $f(x) = \frac{1}{\sqrt{x}}$, what is the domain of $f(x)$?

A. All real numbers

B. All integers except zero

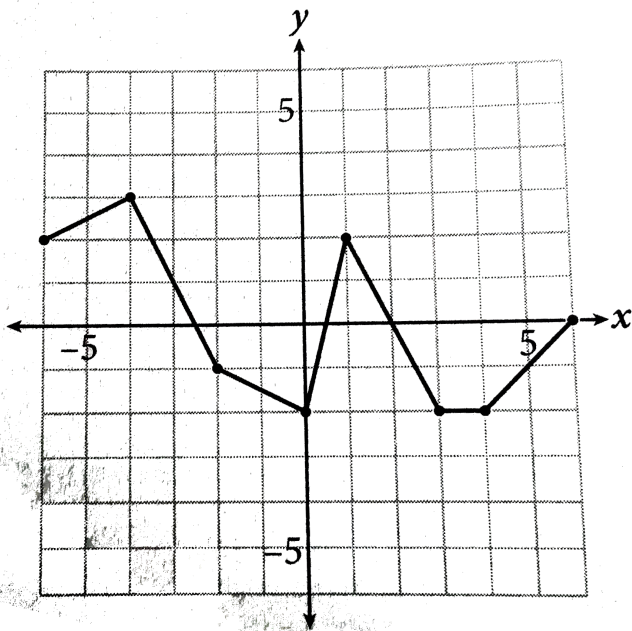
C. All positive real numbers

D. All real numbers except zero

Answer: C



Watch Video Solution



13.

The complete graph of the function f is shown in the xy plane above. Which of the following is/are equal to -2 ?

I. $f(-1)$

II. $f(0)$

III. $f\left(\frac{7}{2}\right)$

A. I only

B. II only

C. II and III only

D. I, II and III

Answer: C



Watch Video Solution

14. The polynomial function p is defined by

$$p(x) = 4x^3 + bx^2 + 41x + 12, \text{ where } b \text{ is a}$$

constant. When graphed on a standard

coordinate plane, p intersects the x -axis at $(-0.25, 0)$, $(3, 0)$ and $(k, 0)$. What is the value of b ?

A. -27

B. $-\sqrt{207}$

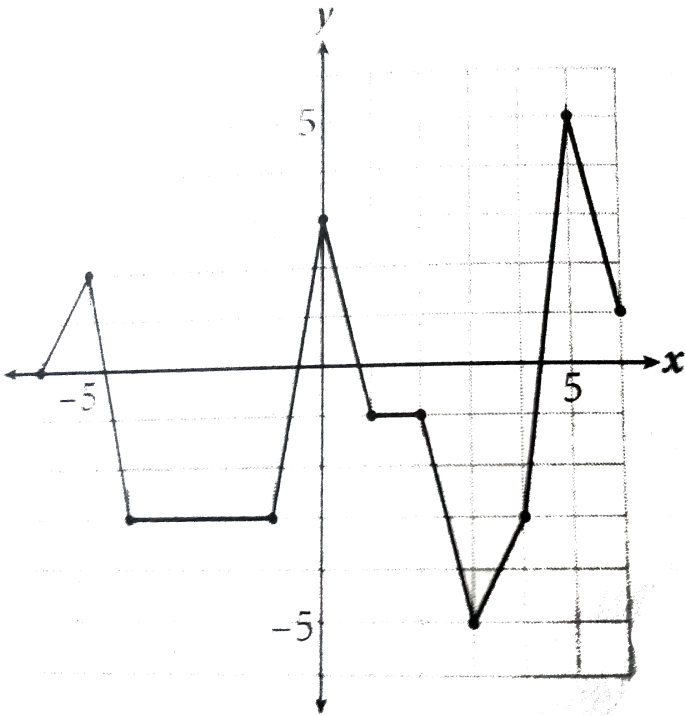
C. 4

D. 27

Answer: A



Watch Video Solution



15.

The figure above shows the graph of $h(x)$ on the interval $-6 \leq x \leq 6$. If $h(3)=a$, what is the value of $h(a)$?

A. -6

B. -5

C. 0

D. 2

Answer: D



Watch Video Solution

16. A function satisfies $g(5)=3$ and $g(3)=0$, and a function h satisfies $h(3)=-2$ and $h(0)=5$. What is the value of $h(g(3))$?



Watch Video Solution

17. If $f(x + 2) = x^2 - x + 9$, then what is the value of $f(-6)$?

A. -47

B. 29

C. 65

D. 81

Answer: D



Watch Video Solution

18. If $g(x + 3) = x^2 + 2x + 1$, then which of the following gives $g(x)$?

A. $g(x) = x^2 + 8x + 16$

B. $g(x) = x^2 - 4x + 4$

C. $g(x) = x^2 + 2x + 4$

D. $g(x) = x^2 + 2x - 2$

Answer: B



Watch Video Solution

19. A commercial airline has calculated that the approximately fuel mileage for its 600-passenger airplane is 0.2 miles per gallon when the plane travels at an average speed of 500 miles per hour. Flight 818's fuel tank has 42,000 gallons of fuel at the beginning of an international flight. If the plane travels at average speed of 500 miles per hour, which of the following functions f models the number of gallons of fuel remaining in the tank t hours after the flight begins?

$$\text{A. } f(t) = 42,000 - \frac{500t}{0.2}$$

$$\text{B. } f(t) = 42,000 - \frac{0.2}{500t}$$

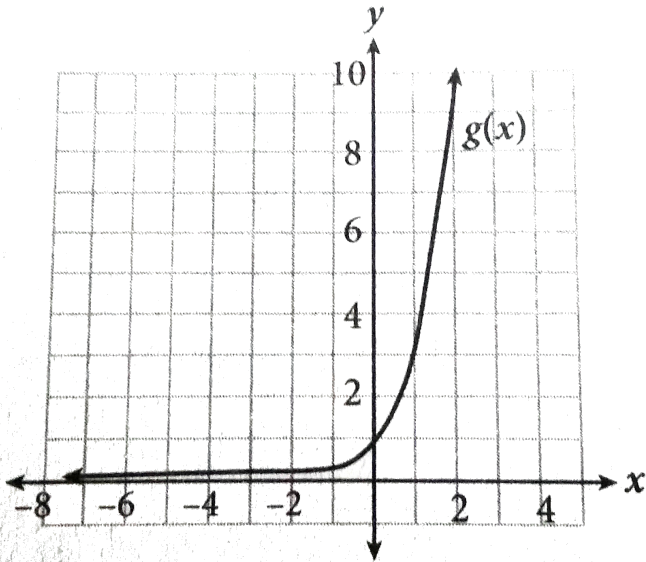
$$\text{C. } f(t) = \frac{42,000 - 500t}{0.2}$$

$$\text{D. } f(t) = \frac{42,000 - 0.2}{500t}$$

Answer: A



Watch Video Solution



20.

An exponential function $g(x)$ is shown in the figure above. What is the exact value of $g(-4)$?



[Watch Video Solution](#)