



MATHS

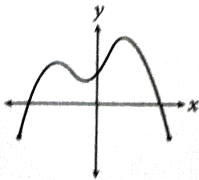
BOOKS - KAPLAN INC MATHS

(ENGLISH)

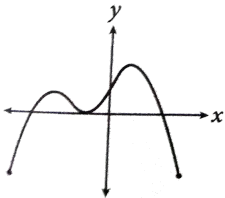
**ADVANCED TECHNIQUES FOR
POLYNOMIALS AND RATIONAL
EQUATIONS**

Multiple Choice Question

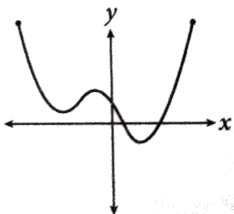
1. If a function $p(x)$ has four distinct zeros, which of the following could represent the entire graph of p in a standard coordinate plane?



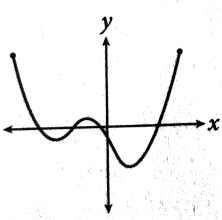
A.



B.



C.

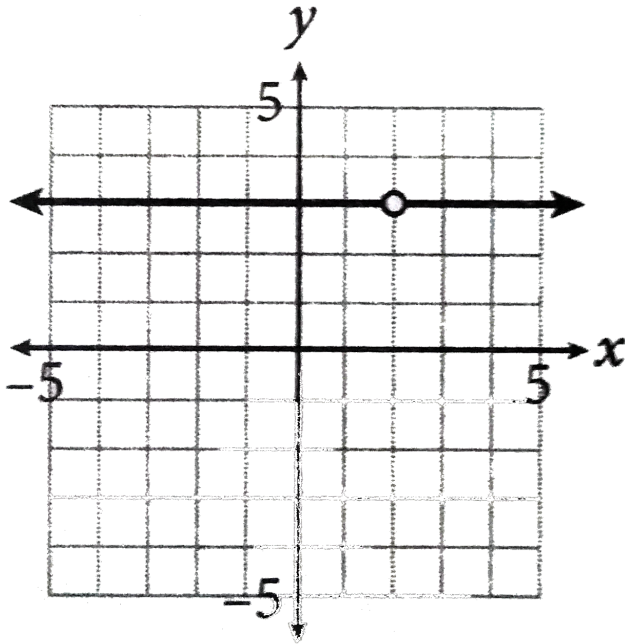


D.

Answer: D



Watch Video Solution



2.

Which of the following rational functions could represent the graph shown?

A. $r(x) = 3$

B. $r(x) = \frac{x - 3}{x - 2}$

$$\text{C. } r(x) = \frac{2}{x - 3}$$

$$\text{D. } r(x) = \frac{3x - 6}{x - 2}$$

Answer: D



Watch Video Solution

3. For which values of x in the expression

$$\frac{3x + 6}{3x(4x + 8)(x - 5)} \text{ undefined?}$$

A. -2

B. $-2, 5$

C. 0, - 2, 5

D. 0, 2, - 5

Answer: C



Watch Video Solution

4. If $y \neq z$, then $\frac{xy - zx}{z - y} =$

A. $-x$

B. -1

C. 1

D. x

Answer: A



Watch Video Solution

5. If Q is the quotient when $(x^2 - 10x - 24)$ is divided by $(x + 2)$ and $x \neq -2$, which of the following represents Q ?

A. $x - 22$

B. $x - 12$

C. $x + 12$

D. $x + 22$

Answer: B



Watch Video Solution

6. Given that $a \neq \pm \frac{1}{2}$, which of the following is equivalent to $\frac{2a^2 + 5a - 3}{4a^2 - 1}$?

A. $\frac{2a - 3}{2a + 1}$

B. $\frac{a - 3}{2a - 1}$

C. $\frac{2a + 3}{2a - 1}$

D. $\frac{a + 3}{2a + 1}$

Answer: D



Watch Video Solution

7.
$$\frac{1}{\frac{1}{x-4} - \frac{1}{x+6}}$$

Which of the following is equivalent to the expression above?

A. 10

B. $\frac{10(x - 4)}{x + 6}$

C. $\frac{x^2 + 2x - 24}{10}$

D. $\frac{10}{x^2 + 2x - 24}$

Answer: D



Watch Video Solution

8. $\frac{2}{x + 1} - \frac{x}{6} = 0$

If x_1 and x_2 are valid solutions to the rational equation given, what is the sum of $x_1 + x_2$?

A. -1

B. 0

C. 1

D. 2

Answer: A



Watch Video Solution

9. Given that $\frac{2m + n}{2n} = \frac{3}{4}$, which of the following must also be true?

$$\text{A. } m = \frac{1}{8}$$

$$\text{B. } m = \frac{3}{4}$$

$$\text{C. } \frac{m}{n} = \frac{1}{4}$$

$$\text{D. } \frac{m}{n} = \frac{5}{4}$$

Answer: C



Watch Video Solution

10. What is/are the solution(s) to the equation

$$\frac{x}{x+1} + \frac{8}{x-2} = \frac{3}{(x+1)(x-2)}?$$

A. -5 only

B. -1 and -5

C. 1 and 5

D. No real solution

Answer: A



Watch Video Solution

11. If a and b are solutions to the equation

$$\frac{2x}{2x+1} + \frac{8}{x-3} = 0, \text{ and } a < b, \text{ what is}$$

the value of a ?

A. -4

B. -1

C. 1

D. 4

Answer: A



Watch Video Solution

12. If $g(x) = 2(x^2 - 6x - 12) + 3(k - x)$

and $g(x)$ is evenly divisible by x , then what is

the value of k ?

A. -8

B. -3

C. 2

D. 3

Answer: A



Watch Video Solution

13. What is one possible solution to the

rational equation $\frac{1}{x} - \frac{2}{x-2} = 3$?



 [Watch Video Solution](#)

14. When $-2x^3 - 2x^2 + 27x - 30$ is divided by $2-x$, what is the remainder?



[Watch Video Solution](#)

15. Professors Lambert and Stassen teamteach an advanced psychology class. Their students recently took their final exams, and the professors are preparing to grade them. Professor Stassen predicts that, if she graded

all the exams, she would take 50% more time than Professor Lambert would if he graded all the exams. They estimate that it will take them 40 hours to grade all the exams if they grade together. Which of the following equations best represents the situation described?

A. $x + \frac{3}{2}x = 40$

B. $\frac{1}{x} + \frac{2}{3x} = \frac{1}{40}$

C. $\frac{1}{x} + \frac{50}{x} = \frac{1}{40}$

D. $\frac{2}{x} + \frac{3}{x} = \frac{1}{40}$

Answer: B



Watch Video Solution

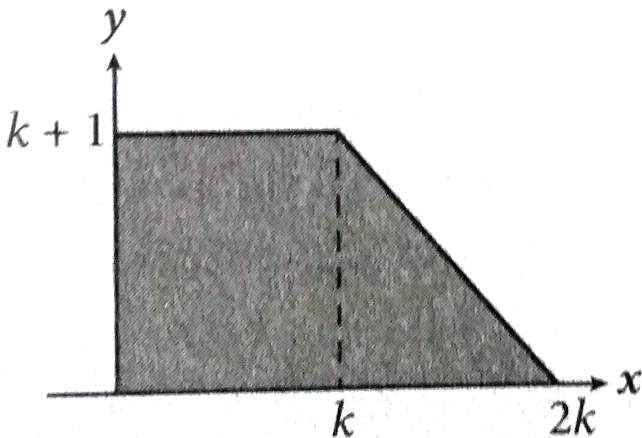
16. Using a riding lawnmower, Je can cut his lawn in 45 minutes. Using a push power, Joe's son can cut the lawn in 3 hours. If they work together, how long will it take them to cut the lawn?

- A. 24 minutes
- B. 30 minutes
- C. 36 minutes

D. 40 minutes

Answer: C

 Watch Video Solution



17.

Which of the following polynomial equations

could be used to represent the area of the trapezoid shown in the figure?

A. $A = k^2 + k$

B. $A = \frac{3k^2 + 3k}{2}$

C. $A = \frac{3k^2 + k}{2}$

D. $A = \frac{3k^3 + k^2}{2}$

Answer: B



Watch Video Solution

18. $p(x) = 12x^4 + 13x^3 - 35x^2 - 16x + 20$

Which of the following is a factor of the polynomial given above?

A. $2x + 3$

B. $3x - 2$

C. $4x + 5$

D. $5x - 3$

Answer: B



Watch Video Solution

19. If the expression $\frac{9x^2}{3x - 2}$ is rewritten in the form $A = \frac{4}{3x - 2}$, which of the following gives A in terms of x?

A. $\frac{9x^4}{4}$

B. $3x + 2$

C. $3x - 2$

D. $9x^2 - 4$

Answer: B



Watch Video Solution

20. $p(x) = 6x^2 + 7x - 2$

$$q(x) = 2x^2 + 7x - 1$$

Two polynomial functions $p(x)$ and $q(x)$ are defined above. Which of the following polynomial functions is divisible by $2x+5$?

A. $r(x) = p(x) + q(x)$

B. $r(x) = 2p(x) + q(x)$

C. $r(x) = p(x) + 3q(x)$

D. $r(x) = 2p(x) + 3q(x)$

Answer: C



Watch Video Solution