

3 For a wedding, Shereda bought several dozen roses and several dozen carnations. The roses cost \$15 per dozen, and the carnations cost \$8 per dozen. Shereda bought a total of 17 dozen flowers and paid a total of \$192. How many roses did she buy?

- A 6 dozen
- B 7 dozen
- C 8 dozen
- D 9 dozen

4 What is the solution to the system of equations shown below?

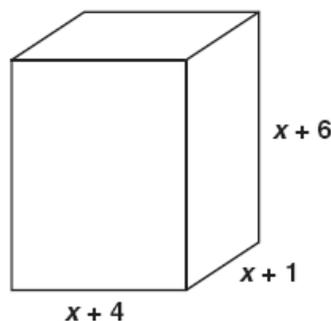
$$\begin{cases} 2x - y + 3z = 8 \\ x - 6y - z = 0 \\ -6x + 3y - 9z = 24 \end{cases}$$

- A (0, 4, 4)
- B $(1, 4, \frac{10}{3})$
- C no solution
- D infinitely many solutions

10 $2x + 7 \overline{) 2x^4 + 21x^3 + 35x^2 - 37x + 46}$

- A $x^3 + 7x^2 - 7x + 6 - \frac{4}{2x+7}$
- B $2x^3 + 14x^2 - 14x + 12 - \frac{4}{2x+7}$
- C $x^3 - 7x^2 + 7x - 6 + \frac{4}{2x+7}$
- D $x^3 + 7x^2 - 7x + 6 + \frac{4}{2x+7}$

14 What is the volume of the figure below?



- A $x^3 + 10x^2 + 34x + 24$
- B $x^3 + 11x^2 + 34x + 24$
- C $x^3 + 10x^2 + 24x + 24$
- D $x^3 + 11x^2 + 24x + 24$

24 Which product is equivalent to $\frac{4x^2 - 16}{2 - x}$?

- A $4(x - 2)$
- B $4(x + 2)$
- C $-4(x - 2)$
- D $-4(x + 2)$

22 Which is a simplified form of $\frac{3a^2b^3c^{-2}}{(a^{-1}b^2c)^3}$?

- A $\frac{3a^5}{b^3c^5}$
- B $\frac{3ab}{c^5}$
- C $\frac{3}{b^2c^5}$
- D $\frac{3}{ab^3c^5}$

21

$$\frac{x+3}{x+5} + \frac{6}{x^2+3x-10} =$$

- A $\frac{x^2+x}{x^2+3x-10}$
- B $\frac{7x-9}{x^2+3x-10}$
- C $\frac{x^2+x+12}{x^2+3x-10}$
- D $\frac{x^2+x+1}{x^2+3x-10}$

28

$$\frac{4(x+y)}{5x^2y^3} \div \frac{-2x-2y}{10} =$$

- A $-\frac{4}{x^2y^3}$
- B $\frac{4}{x^2y^3}$
- C $-\frac{4(x+y)}{x^2y^3(x-y)}$
- D $\frac{4(x+y)^2}{5x^2y^3}$

35

If $i = \sqrt{-1}$ and a and b are non-zero real numbers, what is $\frac{1}{a+bi}$?

- A $\frac{a+bi}{a^2+b^2}$
- B $\frac{a-bi}{a^2+b^2}$
- C $\frac{a+bi}{a^2-b^2}$
- D $\frac{a-bi}{a^2-b^2}$

39

What are the solutions to the equation $1 + \frac{1}{x^2} = \frac{3}{x}$?

- A $x = \frac{3}{2} + \frac{\sqrt{5}}{2}; x = \frac{3}{2} - \frac{\sqrt{5}}{2}$
- B $x = 3 + \frac{\sqrt{5}}{2}; x = 3 - \frac{\sqrt{5}}{2}$
- C $x = \frac{3}{2} + \frac{\sqrt{13}}{2}; x = \frac{3}{2} - \frac{\sqrt{13}}{2}$
- D $x = 3 + \frac{\sqrt{13}}{2}; x = 3 - \frac{\sqrt{13}}{2}$

42

Two consecutive positive integers have the property that one integer times twice the other equals 612. What is the sum of these two integers?

- A 33
- B 35
- C 37
- D 39

46

What are the x -intercepts of the graph of $y = 12x^2 - 5x - 2$?

- A 1 and $-\frac{1}{6}$
- B -1 and $\frac{1}{6}$
- C $\frac{2}{3}$ and $-\frac{1}{4}$
- D $-\frac{2}{3}$ and $\frac{1}{4}$