

Answer Key – Short Answer

| | | | | | |
|---|------------------------|----------|------------|-----------|-----------|
| 1 | Camille's hours | 5 | 5.5 | 8 | 10 |
| | Zoe's hours | 6 | 7 | 12 | 16 |

- 2
- a) $2.95y - 4$
b) $3x + 1$

- 3
- a) The perimeter of the triangle is $(4a + 6)$ cm long.
b) The area of the triangle is $(3a + 6)$ cm².

4

In this equation, x is equal to 2.4 or $\frac{12}{5}$ or any equivalent value.

5

The equation representing this situation is :
 $x + (x + 5) + (x + 5 - 23) = 110$
or $x + (x + 5) + (x - 18) = 110$
or any other equivalent equation.

- 6
- a) -16
b) 25

- 7
- a) $10x - 7$
b) $3x - 4$
c) $-30 + 24x$
d) $5x - 1$

8

$3(x + 5) = 2x - 4$

9

The algebraic expression for the perimeter of the quadrilateral is $3b + 18$.

10

$x = -15$

11

The equation is $2x + 5 = 3x - 10$.

12

The value of m is 35.6.

13

The depth d of the land is 20 m.

14

$x = \frac{-1}{2}$

15

The equation is $x + 2x + 8 = 47$.

Accept an equivalent equation.

16

The locks to be blackened are : -1 and 2.

17

The equation is $x + 2x + 4 = 40$ or any other equivalent equation.

18

The simplified expression is: $-3x - 2$

19

$x = 5$

20

| | | | | |
|--------------------------------------|---|----|----|----|
| Distance covered by Jennifer (km) | 2 | 4 | 7 | 11 |
| Distance covered by Jerry (km) | 7 | 11 | 17 | 25 |

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- a) $4x + y + 8$
 b) $-x + 4$
 c) $x + 2y - 4$
 d) $12x - 19$

22

- a) -1
 b) $5x - 1$

23

- a) $11x + 29$
 b) $3x + 6$

24

- a) $x = 2$
 b) $x = \frac{7}{2}$ or $x = 3.5$

25

| | | | |
|---------------------------------------|-----|-----|-----------|
| Number of boxes of Honey Nut Cheerios | 50 | 72 | n |
| Number of boxes of regular Cheerios | 130 | 196 | $3n - 20$ |

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a) $\frac{(8x + 16)}{4} - 3(x - 5)$

$$2x + 4 - 3x + 15$$

$$19 - x \text{ or } -x + 19$$

b) $2(5x - 1) = 3 - 5(2 - x)$

$$10x - 2 = 3 - 10 + 5x$$

$$10x - 2 = -7 + 5x$$

$$5x = -5$$

$$x = -1$$

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$$\begin{aligned} \text{a)} \quad & 3(4x + 2) - (2x + 7) \\ & 12x + 6 - 2x - 7 \\ & \mathbf{10x - 1} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & 5x + 4 - 8x = 7x - 12 \\ & -3x + 4 = 7x - 12 \\ & 4 + 12 = 7x + 3x \\ & 16 = 10x \\ & \frac{16}{10} = x \\ & \frac{8}{5} = x \\ & 1.6 = x \end{aligned}$$

$$\begin{aligned} & 5x - 8x - 7x = -4 - 12 \\ & -10x = -16 \\ & x = 1.6 \end{aligned}$$

Answer: $\frac{8}{5}$ or $1\frac{3}{5}$ or **1.6**.

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a) Example of an appropriate solution

$$\begin{aligned} & 3(2x) + 5 - x = 2x + 17 \\ & 6x + 5 - x = 2x + 17 \\ & 5x + 5 - 5 = 2x + 17 - 5 \\ & 5x = 2x + 12 \\ & 5x - 2x = 2x - 2x + 12 \\ & 3x = 12 \\ & \frac{3x}{3} = \frac{12}{3} \\ & x = 4 \end{aligned}$$

Answer: $x = 4$

b) Examples of appropriate solutions

Example 1

(cross-multiplication)

$$\begin{aligned}\frac{x-12}{2} &= \frac{x}{3} \\ 3(x-12) &= 2x \\ 3x-36 &= 2x \\ 3x-36+36 &= 2x+36 \\ 3x &= 2x+36 \\ 3x-2x &= 2x-2x+36 \\ x &= 36\end{aligned}$$

Example 2

(common denominator)

$$\begin{aligned}\frac{x-12}{2} &= \frac{x}{3} \\ \frac{x-12}{2} \times \frac{3}{3} &= \frac{x}{3} \times \frac{2}{2} \\ \frac{3(x-12)}{6} &= \frac{2x}{6}\end{aligned}$$

Since the two fractions are equal and since their denominators are common \Rightarrow numerators must be equal:

$$\begin{aligned}3(x-12) &= 2x \\ 3x-36 &= 2x \\ 3x-36+36 &= 2x+36 \\ 3x &= 2x+36 \\ 3x-2x &= 2x-2x+36 \\ x &= 36\end{aligned}$$

Answer: $x = 36$

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a) $2(4x - 7) - (5 - 3x)$

$$8x - 14 - 5 + 3x$$

$$11x - 19$$

b)

$$2(x + 3) = 10 - (x - 5)$$

$$2x + 6 = 10 - x + 5$$

$$2x + 6 = 15 - x$$

$$3x = 9$$

$$x = 3$$

30

6x