Chapter 10 Practice Test

Chapter 10 Practice Test Page 402 Question 1

Answer: **D**

$$\frac{x}{3} = -12$$
$$3 \times \frac{x}{3} = -12 \times 3$$
$$x = -36$$

Chapter 10 Practice Test Page 402 Question 2

Answer: **C**

Determine the spring distance when the force is 38 N.

$$38 = 15d$$
$$\frac{38}{15} = \frac{15d}{15}$$
$$2.5\overline{3} = d$$

The spring stretches a distance of 2.5 cm.

Chapter 10 Practice Test Page 402 Question 3

Answer: **A**

$$5n - 7 = -4$$
$$5n - 7 + 7 = -4 + 7$$
$$5n = 3$$
$$\frac{5n}{5} = \frac{3}{5}$$
$$n = \frac{3}{5}$$

Chapter 10 Practice Test Page 402 Question 4

Answer: **C**
Substitute the value of $p = -6$ into each of the four equations.

$\frac{p}{3} - 4 = -2$

Left Side $= \frac{p}{3} - 4$ Right Side $= -2$

$= \frac{-6}{3} - 4$

$= -2 - 4$

$= -6$

Left Side $\neq$ Right Side
$p = -6$ is not the solution.

$\frac{p}{3} + 4 = -2$

Left Side $= \frac{p}{3} + 4$ Right Side $= -2$

$= \frac{-6}{3} + 4$

$= -2 + 4$

$= 2$

Left Side $\neq$ Right Side
$p = -6$ is not the solution.

$\frac{p}{-3} + 4 = -2$

Left Side $= \frac{p}{-3} + 4$ Right Side $= -2$

$= \frac{-6}{-3} + 4$

$= 2 + 4$

$= 6$

Left Side $\neq$ Right Side
$p = -6$ is not the solution.

$\frac{p}{-3} - 4 = -2$

Left Side = $\frac{p}{-3} - 4$ Right Side = –2

$= \frac{-6}{-3} - 4$

$= 2 - 4$

$= -2$

Left Side = Right Side

$p = -6$ is the solution.

Chapter 10 Practice Test Page 402 Question 5

Answer: **A**

Solve the equation and compare to Wanda's work.

$4(x-3) = 2$

$4x - 12 = 2$

$4x - 12 + 12 = 2 + 12$

$4x = 14$

$\frac{4x}{4} = \frac{14}{4}$

$x = \frac{7}{2}$

Wanda made her error in Step 1 when she distributed the 4 to the 2 on the right side of the equation.

Chapter 10 Practice Test Page 402 Question 6

The opposite operation of division is multiplication.

Chapter 10 Practice Test Page 402 Question 7

The solution to $-4(y+10) = 24$ is $y = -16$.

$-4(y+10) = 24$ Use the distributive property.

$-4y - 40 = 24$

$-4y - 40 + 40 = 24 + 40$ Add 40 to both sides of the equation.

$-4y = 64$

$\frac{-4y}{-4} = \frac{64}{-4}$ Divide both sides of the equation by -4.

$y = -16$

Chapter 10 Practice Test Page 402 Question 8

a)

b) $-3x-4=2$

$-3x-4+4=2+4$

$-3x=6$

$\frac{-3x}{-3}=\frac{6}{-3}$

$x=-2$

Chapter 10 Practice Test Page 402 Question 9

a) The tiles represent the equation $2x - 8 = 6$.

b) The first step Dillon should take is to add eight positive 1-tiles to each side of the equation to isolate the variable.

Chapter 10 Practice Test Page 402 Question 10

a) $4x = 48$

$$\frac{4x}{4} = \frac{48}{4}$$

$$x = 12$$

Check:

Left Side = $4x$ Right Side = 48

$= 4(12)$

$= 48$

Left Side = Right Side

The solution is correct.

b) $\frac{t}{-5} = -8$

$$-5 \times \frac{t}{-5} = -8 \times (-5)$$

$$t = 40$$

Check:

Left Side = $\frac{t}{-5}$ Right Side = -8

$= \frac{40}{-5}$

$= -8$

Left Side = Right Side

The solution is correct.

c) $2k - 6 = 31$

$$2k - 6 + 6 = 31 + 6$$

$$2k = 37$$

$$\frac{2k}{2} = \frac{37}{2}$$

$$k = 18.5$$

Check:

Left Side = $2k - 6$ Right Side = 31

$= 2(18.5) - 6$

$= 37 - 6$

$= 31$

Left Side = Right Side

The solution is correct.

d) $\frac{d}{7} - 5 = 16$

$\frac{d}{7} - 5 + 5 = 16 + 5$

$\frac{d}{7} = 21$

$7 \times \frac{d}{7} = 21 \times 7$

$d = 147$

Check:

Left Side $= \frac{d}{7} - 5$ Right Side $= 16$

$= \frac{147}{7} - 5$

$= 21 - 5$

$= 16$

Left Side = Right Side
The solution is correct.

e) $3 - \frac{n}{4} = 8$

$3 - \frac{n}{4} - 3 = 8 - 3$

$-\frac{n}{4} = 5$

$-4 \times \frac{n}{-4} = 5 \times (-4)$

$n = -20$

Check:

Left Side $= 3 - \frac{n}{4}$ Right Side $= 8$

$= 3 - \frac{-20}{4}$

$= 3 + 5$

$= 8$

Left Side = Right Side
The solution is correct.

f) $12 = 4(x - 2)$

$12 = 4x - 8$

$12 + 8 = 4x - 8 + 8$

$20 = 4x$

$\frac{20}{4} = \frac{4x}{4}$

$5 = x$

Check:

Left Side = 12

Right Side = $4(x - 2)$

$= 4(5 - 2)$

$= 4(3)$

$= 12$

Left Side = Right Side

The solution is correct.

Chapter 10 Practice Test Page 402 Question 11

Answers will vary. Example:

a) Use the distributive property. $-3(b + 3) = -15$

$-3b - 9 = -15$

Add 9 to both sides to isolate the variable. $-3b - 9 + 9 = -15 + 9$

$-3b = -6$

Divide both sides by –3. $\frac{-3b}{-3} = \frac{-6}{-3}$

$b = 2$

b) Subtract 3 from both sides of the equation. $-3b + 3 - 3 = -15 - 3$

$-3b = -18$

Divide both sides by –3. $\frac{-3b}{-3} = \frac{-18}{-3}$

$b = 6$

Chapter 10 Practice Test Page 403 Question 12

a) Let a represent the elevation of Lake Athabasca in metres.
The equation to model this situation is $7a + 45 = 1536$.

b) $7a + 45 = 1536$

$7a + 45 - 45 = 1536 - 45$

$7a = 1491$

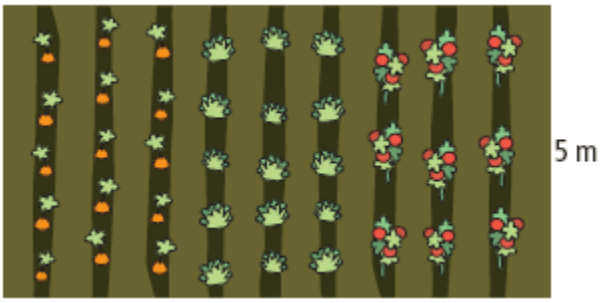
$\frac{7a}{7} = \frac{1491}{7}$

$a = 213$

The elevation of Lake Athabasca is 213 m.

Chapter 10 Practice Test Page 403 Question 13

Let x represent the length in metres of the original garden.
The length of the new garden can be expressed as $x + 3$.



The following equation represents the area of the new garden: $5(x + 3) = 90$.

$5(x + 3) = 90$ Use the distributive property.

$5x + 15 = 90$

$5x + 15 - 15 = 90 - 15$ Subtract 15 from both sides of the equation.

$5x = 75$

$\frac{5x}{5} = \frac{75}{5}$ Divide both sides of the equation by 5.

$x = 15$

The length of the original garden is 15 m.

Chapter 10 Practice Test Page 403 Question 14

a) Answers may vary. Example: In the second line of the solution, 18 is added on the left side of the equation instead of subtracted.

b) $-6 = 18 + 3x$

$-6 - 18 = 18 + 3x - 18$

$-24 = 3x$

$\frac{-24}{3} = \frac{3x}{3}$

$-8 = x$

Chapter 10 Practice Test Page 403 Question 15

a) Solve for the length.

$14 = 2(l + 3)$

$14 = 2l + 6$

$14 - 6 = 2l + 6 - 6$

$8 = 2l$

$\frac{8}{2} = \frac{2l}{2}$

$4 = l$

The length of the rectangle is 4 cm.

Check:

Left Side = 14

Right Side $= 2(l + 3)$
$= 2(4 + 3)$
$= 2(7)$
$= 14$

Left Side = Right Side

The solution is correct.

b) Find the width of the second rectangle.

$12 = 2(4 + w)$

$12 = 8 + 2w$

$12 - 8 = 8 + 2w - 8$

$4 = 2w$

$\frac{4}{2} = \frac{2w}{2}$

$2 = w$

The width of the second rectangle is 2 cm.

Determine the area of the second rectangle.

$A = l \times w$

$A = 4 \times 2$

$A = 8$

The area of the rectangle is 8 cm^2.