

EXERCISE SET 2 ANSWER KEY

No Calculator

1. **29** 4 pounds 5 ounces = $4(16) + 5 = 69$ ounces, and 6 pounds 2 ounces = $6(16) + 2 = 98$ ounces. Therefore, bag B weighs $98 - 69 = 29$ ounces more.

2. **2/15 or .133**

$$\frac{3a + b}{b} = \frac{7}{5}$$

Distribute division:

$$\frac{3a}{b} + \frac{b}{b} = \frac{7}{5}$$

Simplify:

$$\frac{3a}{b} + 1 = \frac{7}{5}$$

Subtract 1:

$$\frac{3a}{b} = \frac{2}{5}$$

Divide by 3:

$$\frac{a}{b} = \frac{2}{15}$$

3. **4** Expression to be evaluated:

$$\frac{2x}{y + 5}$$

Given equation:

$$x - 2y = 10$$

Add 2y:

$$x = 2y + 10$$

Substitute $x = 2y + 10$:

$$\frac{2(2y + 10)}{y + 5}$$

Simplify:

$$\frac{4y + 20}{y + 5}$$

Factor and simplify:

$$\frac{4(y + 5)}{y + 5} = 4$$

4. **3/4 or .75**

$$a^2 - b^2 = 3$$

Factor:

$$(a - b)(a + b) = 3$$

Substitute $a - b = 4$:

$$4(a + b) = 3$$

Divide by 4:

$$a + b = \frac{3}{4}$$

5. **12/5 or 2.4**

$$2 \text{ merts} \times \frac{6 \text{ gricks}}{5 \text{ merts}} = \frac{12}{5} \text{ gricks}$$

6. **64**

$$\{4\} = (1 - 4)^2 = (-3)^2 = 9$$

$$\{\{4\}\} = (1 - \{4\})^2 = (1 - 9)^2 = (-8)^2 = 64$$

7. **2** Given equation:

$$\frac{a + b}{b} = 3$$

Distribute division:

$$\frac{a}{b} + 1 = 3$$

Subtract 1:

$$\frac{a}{b} = 2$$

Reciprocate:

$$\frac{b}{a} = \frac{1}{2}$$

Given equation:

$$\frac{a + c}{c} = 5$$

Distribute division:

$$\frac{a}{c} + 1 = 5$$

Subtract 1:

$$\frac{a}{c} = 4$$

Multiply:

$$\frac{b}{c} = \left(\frac{b}{a}\right)\left(\frac{a}{c}\right) = \left(\frac{1}{2}\right)(4) = 2$$

8. **D** Given:

$$(x - 9)(x - a) = x^2 - 4ax + b$$

FOIL:

$$x^2 - ax - 9x + 9a = x^2 - 4ax + b$$

Simplify:

$$x^2 - (a + 9)x + 9a = x^2 - 4ax + b$$

If this equation is true for all x , then the coefficients of corresponding terms

must be equal, so

$$a + 9 = 4a$$

Subtract a :

$$9 = 3a$$

Divide by 3:

$$3 = a$$

Therefore $b = 9a = 9(3) = 27$.

9. **A** Given equation:

$$\frac{5}{x} + \frac{7}{5} = 1$$

Multiply by 5x:

$$25 + 7x = 5x$$

Subtract 7x:

$$25 = -2x$$

Divide by -2:

$$-\frac{25}{2} = x$$

10. **C** Given equation:

$$(p + 2)^2 = (p - 5)^2$$

FOIL:

$$p^2 + 4p + 4 = p^2 - 10p + 25$$

Subtract p^2 :

$$4p + 4 = -10p + 25$$

Add 10p:

$$14p + 4 = 25$$

Subtract 4:

$$14p = 21$$

Divide by 14:

$$p = 1.5$$

11. **D** Given equation:

$$\frac{3x}{m - nx} = 2$$

Multiply by $m - nx$:

$$3x = 2(m - nx)$$

Distribute:

$$3x = 2m - 2nx$$

Add 2nx:

$$3x + 2nx = 2m$$

Factor out x:

$$x(3 + 2n) = 2m$$

Divide by $3 + 2n$:

$$x = \frac{2m}{3 + 2n}$$