Jakarta International School

8th Grade – AG1

Name: Solutions

Date:

Practice Test - Green

Score: (25)

Unit 1: Solving Linear Equations

Linear Equations Goal 1:
Students will understand the meanings of operations and how they relate to one another, especially as a means to solve equations and evaluate expressions.

Clearly show required work. Check carefully!

1.
$$-3 = \frac{3}{4}x + 6$$
$$\frac{3}{4}x + 6 - 6 = -3 - 6$$
$$\left(\frac{4}{3}\right)\left(\frac{3}{4}x\right) = -9\left(\frac{4}{3}\right)$$
$$x = -12$$
Check:
$$-3 = \frac{3}{4}\left(\frac{-12}{1}\right) + 6$$
$$-3 = -9 + 6$$
$$-3 = -3 \checkmark$$

(3)

2.
$$2 - 6w = 10w - 2$$
$$2 - 6w - 10w = 10w - 2 - 10w$$
$$-16w + 2 - 2 = -2 - 2$$
$$\frac{-16w}{-16} = \frac{-4}{-16}$$
$$w = \frac{1}{4}$$
Check:
$$2 - 6\left(\frac{1}{4}\right) = 10\left(\frac{1}{4}\right) - 2$$
$$\frac{2}{1} - \frac{6}{4} = \frac{10}{4} - \frac{8}{4}$$
$$\frac{8}{4} - \frac{6}{4} = \frac{4}{4}$$
$$\frac{2}{4} = \frac{4}{4}$$

(3)

3.
$$8 - 4(x-1) = 0$$
$$8 - 4x + 4 = 0$$
$$-4x + 12 = -12$$
$$\frac{-4x}{-4} = \frac{-12}{-4}$$
$$x = 3$$
Check:
$$8 - 4(3-1) = 0$$
$$8 - 12 + 4 = 0$$
$$0 = 0 \checkmark$$

(3)

4.
$$8(x-2) = 4(2x-4)$$
$$8x - 16 = 8x - 16$$
$$8x - 16 - 8x = 8x - 16 - 8x$$
$$-16 = -16$$
The equation is an identity so all values of x are solutions

(3)

5.
$$5x + 2 = 3x + (8x + 2)$$
$$5x + 2 = 11x + 2$$
$$5x + 2 - 11x = 11x + 2 - 11x$$
$$-6x + 2 - 2 = 2 - 2$$
$$\frac{-6x}{-6} = \frac{0}{-6}$$
$$x = 0$$
Check: $5(0) + 2 = 3(0) + 8(0) + 2$
$$2 = 2 \checkmark$$

(3)

6. Solve for x if $\quad I = \frac{xh - a}{3}$
$$\frac{xh}{3} - a + a = I + a$$
$$3\left(\frac{xh}{3}\right) = 3(I + a)$$
$$\frac{xh}{h} = \frac{3I + 3a}{h}$$
$$x = \frac{3I + 3a}{h}$$

(3)

7-9 Substitute and evaluate the algebraic expressions if m = -2, n = 3, s = 5, $p = \frac{4}{5}$, and $y = \frac{1}{3}$.

7. $5m - 5p$
$$= 5(-2) - 5\left(\frac{4}{5}\right)$$
$$= -10 - 4$$
$$= -14$$

(2)

8. $-9y^2 + 15p - 15$
$$= -9\left(\frac{1}{3} \cdot \frac{1}{3}\right) + 15\left(\frac{4}{5}\right) - 15$$
$$= -9\left(\frac{1}{9}\right) + 12 - 15$$
$$= -1 + 12 - 15$$
$$= -4$$

(2)

9. $\dfrac{8}{p}$
$$= 8 \div \frac{4}{5}$$
$$= \frac{8}{1} \times \frac{5}{4}$$
$$= 10$$

(3)