6.1 Solving Equations by Using Inverse Operations – Worksheet

1. Solve each equation and verify the solution.

a) $-27.25 = c + 2.25$

$$-2.25 \quad -2.25$$

$$\boxed{-29.5 = c}$$

b) $\dfrac{3x}{3} = \dfrac{15.6}{3}$

$$\boxed{x = 5.2}$$

c) $-76.05 = -9b$

$$\dfrac{}{-9} \quad \dfrac{}{-9}$$

$$\boxed{b = 8.45}$$

d) $\dfrac{w}{4.5} = -3.5$ $\quad \times 4.5 \quad \times 4.5$

$$\boxed{w = -15.75}$$

2. Solve each equation and verify the solution.

a) $\dfrac{d}{7} - 3 = 11$ $+3 \quad +3$

$$\dfrac{d}{7} = 14 \quad \times 7$$

$$\boxed{d = 98}$$

b) $-16 = \dfrac{p}{6} + 2$

$$-2 \quad -2$$

$$-18 = \dfrac{p}{6} \times 6$$

$$\boxed{-108 = p}$$

c) $3.1 - 0.2a = 1.5$

$$-3.1 \qquad -3.1$$

$$\dfrac{-0.2a}{-0.2} = \dfrac{-1.6}{-0.2}$$

$$\boxed{a = 8}$$

d) $\dfrac{-4r}{5} = 1.28$ $\quad \times 5 \quad \times 5$

$$\dfrac{-4r}{-4} = \dfrac{6.4}{-4}$$

$$\boxed{r = -1.6}$$

e) $8 - \dfrac{3}{4}c = 5$ $-8 \quad -8$

$$\dfrac{-3}{4}c = \dfrac{-3}{1}$$

$$-\dfrac{3}{4}c = -\dfrac{12}{4}$$

$$\dfrac{-3c}{-3} = \dfrac{-12}{-3}$$

$$\boxed{c = 4}$$

3. A taxicab charges \$2.50, plus \$1.78 per kilometre. How long is a trip that costs \$21.19?

$$2.50 + 1.78K = 21.19$$
$$-2.50 \qquad\qquad -2.50$$
$$\frac{1.78K}{1.78} = \frac{18.69}{1.78}$$
$$\boxed{K = 10.5}$$

4. Solve each equation and verify the solution.

a) $-2(2-x) = -6$

$$-4 + 2x = -6$$
$$+4 \qquad\qquad +4$$
$$\frac{2x}{2} = \frac{-2}{2}$$
$$\boxed{x = -1}$$

b) $3.2(v-3) = 12.8$

$$3.2v - 9.6 = 12.8$$
$$+9.6 \qquad +9.6$$
$$\frac{3.2v}{3.2} = \frac{22.4}{3.2}$$
$$\boxed{v = 7}$$

c) $6\left(m - \dfrac{1}{9}\right) = \dfrac{55}{12}$

$$\frac{6}{1}m^{\times 12} - \frac{2^{\times 4}}{3_{\times 4}} = \frac{55}{12}$$
$$\frac{}{1 \times 12}$$

workings $\left(\dfrac{6}{1}\right)\left(\dfrac{1}{9}\right)$

$$= \frac{-6 \div 3}{9 \div 3}$$
$$= -\frac{2}{3}$$

$\dfrac{8}{3} \times \dfrac{5}{8}$

$\dfrac{5}{3}$

$$\frac{72m}{12} - \frac{8}{12} = \frac{55}{12}$$

$$72m - 8 = 55$$
$$+8 \quad +8$$

$$\frac{72m}{72} = \frac{63}{72}$$
$$m = \frac{63}{72} = \boxed{\frac{7}{8}}$$

d) $-\dfrac{16}{9} = \dfrac{2}{3}\left(\dfrac{5}{2} - g\right)$

$$\frac{-16}{9} = \frac{5^{\times 3}}{3_{\times 3}} - \frac{2^{\times 3}}{3}g_{\times 3}$$

$$\frac{-16}{9} = \frac{15}{9} - \frac{6}{9}g$$

$$-16 = 15 - 6g$$
$$-15 \quad -15$$

$$\frac{-31}{-6} = \frac{-6g}{-6}$$

$$\boxed{g = 3\frac{1}{6}}$$