

N: Key

D: _____

P: 1 2 3 4 5 6

Topic 1 // 2.1 // Practice B

Mission Hills Math 2013

A. Solve for x.

1. Solve for x: $3(x - 5) = 18$

$$\begin{array}{r} \cancel{3} \quad \cancel{3} \\ x - 5 = 6 \\ + 5 \quad + 5 \end{array}$$

$$\boxed{x = 11}$$

2. Solve for x: $5x + 3 = 2x - 1$

$$\begin{array}{r} \cancel{2x} - \cancel{3} \quad \cancel{2x} - \cancel{3} \\ \hline 3x = -4 \\ \hline \end{array}$$

$$\boxed{x = -\frac{4}{3}}$$

3. Solve for a: $2(4a - 5) = 3a - 5$

$$\begin{array}{r} 8a - 10 = 3a - 5 \\ -3a + 10 \quad -3a + 10 \\ \hline 5a = 5 \end{array}$$

$$\frac{5a}{5} = \frac{5}{5} \rightarrow \boxed{a = 1}$$

4. Solve for x: $\frac{3}{4}x - 1 = \frac{1}{2}$

$$\begin{array}{r} +1 \quad +\frac{1}{2} \\ \hline \left(\frac{4}{3}\right) \frac{3}{4}x = \frac{3}{2} \left(\frac{4}{3}\right) \end{array}$$

$$x = \frac{12}{6}$$

$$\boxed{x = 2}$$

5. Solve for y: $2(y - 3) - (y + 10) = -7y + 8$

$$2y - 6 - y - 10 = -7y + 8$$

$$\begin{array}{r} y - 16 = -7y + 8 \\ +7y + 16 \quad +7y + 16 \\ \hline 8y = 24 \end{array}$$

$$\frac{8y}{8} = \frac{24}{8} \rightarrow \boxed{y = 3}$$

6. Solve for n: $\frac{2}{3}n + 8 = 3n + 8$

$$\begin{array}{r} 2n + 24 = 9n + 24 \\ -9n - 24 \quad -9n - 24 \\ \hline -7n = 0 \end{array}$$

$$\frac{-7n}{-7} = \frac{0}{-7} \rightarrow \boxed{n = 0}$$

B. Solve each Literal Equation for x.

7. $y - x = 7$

$$\begin{array}{r} -y \quad -y \\ \hline \end{array}$$

$$(-1) - x = 7 - y (-1)$$

$$x = -7 + y$$

$$\boxed{x = y - 7}$$

8. $3x + 2y = z$

$$\begin{array}{r} -2y - 2y \\ \hline \end{array}$$

$$\frac{3x}{3} = \frac{z - 2y}{3}$$

$$\boxed{x = \frac{z - 2y}{3}}$$

9. $\frac{2}{3}x - 5 = y$

$$\begin{array}{r} +5 \quad +5 \\ \hline \left(\frac{3}{2}\right) \frac{2}{3}x = y + 5 \left(\frac{3}{2}\right) \end{array}$$

$$\boxed{x = \frac{3}{2}y + \frac{15}{2}} \text{ or }$$

$$x = \frac{3}{2}(y + 5)$$

10. $5(x - 10) = a$

$$\begin{array}{r} \cancel{5} \quad \cancel{5} \\ x - 10 = \frac{a}{5} \\ + 10 \quad + 10 \end{array}$$

$$\boxed{x = \frac{a}{5} + 10}$$

11. $-2(3 + x) = y$

$$\begin{array}{r} -2 \quad -2 \\ 3 + x = -\frac{y}{2} - 3 \\ -3 \quad -3 \end{array}$$

$$\boxed{x = -\frac{y}{2} - 3} \text{ or }$$

$$x = -\frac{1}{2}y - 3$$

12. $5x + xy = 3$

$$\begin{array}{r} x(5+y) = 3 \\ \cancel{5+y} \quad \cancel{5+y} \end{array}$$

$$\boxed{x = \frac{3}{5+y}}$$

13. $x - ax = -7$

$$\frac{x(1-a)}{1-a} = \frac{-7}{1-a}$$

$$\boxed{x = \frac{-7}{1-a}}$$

14. $z = xy^2 + 2x$

$$\frac{z}{y^2+2} = \frac{x(y^2+2)}{y^2+2}$$

$$\boxed{x = \frac{z}{y^2+2}}$$

*15. $b - x = 4x + ax$

$$\frac{b}{5+a} = \frac{5x+ax}{5+a}$$

$$\boxed{x = \frac{b}{5+a}}$$

C. Solve for the indicated variable.

16. Solve for h:

$$\frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$$

$$\boxed{h = \frac{V}{\pi r^2}}$$

17. Solve for W:

$$\frac{P}{2} = \frac{2L + 2W}{2}$$

$$\frac{P-2L}{2} = \frac{2W}{2}$$

$$\boxed{W = \frac{P-2L}{2}} \text{ or } W = \frac{1}{2}P - L$$

18. Solve for A:

$$\frac{3V}{h} = \frac{Ah}{h}$$

$$\boxed{A = \frac{3V}{h}}$$

19. Solve for b_2 :

$$\frac{2A}{h} = \frac{h(b_1 + b_2)}{h}$$

$$\frac{2A}{h} = b_1 + b_2$$

$$\frac{2A}{h} - b_1 = b_2$$

$$\boxed{b_2 = \frac{2A}{h} - b_1}$$

20. Solve for F:

$$\frac{9}{5}C = \frac{5}{9}(F-32) \cdot \frac{9}{5}$$

$$\frac{9}{5}C = \frac{F-32}{1}$$

$$\frac{9}{5}C + 32 = F$$

$$\boxed{F = \frac{9}{5}C + 32}$$

21. Solve for n:

$$m^2n - 3n = 8$$

$$n(m^2 - 3) = 8$$

$$\frac{n(m^2 - 3)}{m^2 - 3} = \frac{8}{m^2 - 3}$$

$$\boxed{n = \frac{8}{m^2 - 3}}$$