Literal Equations -- Worksheet #2

SHOW ALL WORK!!

Regular Equations

1a) $43 - 2x = 11$

$-43 \quad -43$

$\frac{-2x}{-2} = \frac{-32}{-2}$

$x = 16$

Literal Equations

1b) Solve for x: $3y + 2x = -1$

$-3y \quad -3y$

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

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

2a) $23 + 4x - 34 = -11$

$4x - 11 = -11$

$+11 \quad +11$

$4x = 0$

$x = 0$

2b) Solve for k: $3 - 3k + 7k = 5b$

$3 + 4k = 5b$

$4k = 5b - 3$

$\boxed{k = \frac{5b-3}{4}}$

3a) $3(2x - 7) = 6$

$6x - 21 = 6$

$\frac{6x}{6} = \frac{27}{6} \quad \frac{9}{2}$

$\boxed{x = 9/2}$

3b) Solve for b: $2 \cdot \frac{1}{2}(4a + 10b) = c \cdot 2$

$4a + 10b = 2c \quad -4a$

$-4a$

$\frac{10b}{10} = \frac{2c - 4a}{10}$

$b = \frac{2c}{10} - \frac{4a}{10}$

$\boxed{b = \frac{1}{5}c - \frac{2a}{5}}$

$2a + 5b = c$

$5b = c - 2a$

$b = \frac{c-2a}{5}$

Formulas can be manipulated through the process of solving literal equations.

4) Solve for h: $A = bh$ (area of a parallelogram)

$h = \frac{A}{b}$

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5) Solve for b: $A = \frac{1}{2}bh$ (Area of a triangle)

$$\frac{2A}{h} = \frac{bh}{h}$$

$$\boxed{b = \frac{2A}{h}}$$

6) Solve for r: $C = 2\pi r$ (Circumference of a circle)

$$\frac{C}{2\pi} = \frac{2\pi r}{2\pi}$$

$$\boxed{r = \frac{C}{2\pi}}$$

7) Solve for w: $P = 2L + 2W$ (Perimeter of a rectangle)

$$-2L \quad -2L$$

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

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

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

8) Solve for t: $D = rt$ (Linear motion)

$$t = \frac{D}{r}$$

9) Solve for C: $F = \frac{9}{5}C + 32$ (Temperature conversions)

$$\left(\frac{5}{9}\right)F - 32 = \left(\frac{5}{9}\right)\frac{9}{5}C \Rightarrow C = \frac{5}{9}(F-32)$$