Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 3B.1 – Solving Multi-Step Equations

#1-6, Solve each equation.

1. $7 - 4y - 6y + 13 = 30$

$20 - 10y = 30$

$-10y = 10$

$\boxed{y = -1}$

2. $c + (c + 2) + (c + 4) = 27$

$c + c + 2 + c + 4 = 27$

$3c + 6 = 27$

$3c = 21$

$\boxed{c = 7}$

3. $42 = 2x - 3(x + 1) - (5x - 3)$

$42 = 2x - 3x - 3 - 5x + 3$

$42 = -6x$

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

4. $3n + 4(n - 9) = -78$

$3n + 4n - 36 = -78$

$7n - 36 = -78$

$7n = -42$

$\boxed{n = -6}$

5. $-9 - (8 - 5t) + 2(t + 3) = 31$

$-9 - 8 + 5t + 2t + 6 = 31$

$7t - 11 = 31$

$7t = 42$

$\boxed{t = 6}$

6. $\frac{1}{2}[6x + 4(2x - 8)] = -51$

$\frac{1}{2}[6x + 8x - 32] = -51$

$\frac{1}{2}[14x - 32] = -51$

$7x - 16 = -51$

$7x = -35$

$\boxed{x = -5}$

7. The length of a rectangular sign is 10 ft less than twice the width. Find the length and the width of the sign if its perimeter is 118 ft.

let w = width

then $2w - 10$ = length

$P = 2 \cdot \text{length} + 2 \cdot \text{width}$

$118 = 2(2w - 10) + 2w$

$118 = 4w - 20 + 2w$

$118 = 6w - 20$

$138 = 6w$

$23 = w$

The width is 23 ft. The length is $2(23) - 10 = 36$ ft.