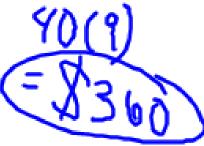Test on Friday! Grab a Warm Up worksheet from the front table. Have your homework out and ready to check.

Classwork = Solving Multi-Step Equations Practice

1) The membership fee for joining a camping association is $45. A local campground charges members of the camping association $35 per night for a campsite. The campground charges nonmembers $40 per night for a campsite.

A) Write and solve an equation to determine after how many nights of camping is the total cost the same for both members and nonmembers.

Define Variable: n = # of nights

Member   Non

Equation

$$35n + 45 = 40n$$
$$-35n \qquad\qquad -35n$$
$$\frac{45}{5} = \frac{5n}{5}$$

$n = 9$ nights

B) How much does each campground costs when they have the same cost?

$$35(9) + 45$$
$$315 + 45 = \$360$$

$$40(9)$$
$$= \$360$$

2) A 12 inch candle and an 18 inch candle are lit at the same time. The 12 inch candle burns 0.5 inches every hour. The 18 inch candle burns two inches every hour.

A) Write and solve an equation to determine what time the two candles will be the same height.

Define Variable: $\underline{h}$ = $\underline{\text{\# of hours}}$

Equation

$$-2h + 18 = -0.5h + 12$$

$$18 - 2h = 12 - 0.5h$$
$$\underline{+2h +2h}$$
$$18 = 12 + 1.5h$$
$$\underline{-12 -12}$$
$$\frac{6}{1.5} = \frac{1.5h}{1.5}$$

$$\boxed{4 \text{ hours} = h}$$

B) What will the height of the candles be when they are the same height?

$$18 - 2(4)$$
$$18 - 8$$
$$\boxed{10 \text{ inches}}$$

$$12 - 0.5(4)$$
$$12 - 2$$
$$\boxed{10 \text{ inches}}$$

Solve each equation. Check your solution.

1. $5(x - 3) + 2x = 41$

$(5x) - 15 (+2x) = 41$

$7x - 15 = 41$

$ +15 \quad +15$

$\dfrac{7x}{7} = \dfrac{56}{7}$

$\boxed{x = 8}$

2. $4a - 3(a - 2) = 2(3a - 2)$

$(4a)(-3a) + 6 = 6a - 4$

$1a + 6 = 6a - 4$

$-1a \quad -1a$

$6 = 5a - 4$

$+4 \quad +4$

$\dfrac{10}{5} = \dfrac{5a}{5} \quad \boxed{a = 2}$

3. $(7t - 2) - 1(-3t + 1) = -3(1 - 3t)$

$(7t)(-2)(+3t)(-1) = -3 + 9t$

$10t - 3 = -3 + 9t$

$-9t \quad -9t$

$1t - 3 = -3$

$+3 \quad +3$

$1t = 0 \quad \boxed{t = 0}$

4. $14 - 2(3p + 1) = 6(4 + p)$

$(14) - 6p(-2) = 24 + 6p$

$-6p + 12 = 24 + 6p$

$+6p \quad +6p$

$12 = 24 + 12p$

$-24 \quad -24$

$\dfrac{-12}{12} = \dfrac{12p}{12} \quad \boxed{p = -1}$

5. $\frac{2}{7}\left(14q + \frac{7}{2}\right) - 3q = 9$

$\left(4q\right) + 1 \left(-3q\right) = 9$

$1q + 1 = 9$

$\; -1 \quad -1$

$\boxed{q = 8}$

6. $x - (4x - 7) = 5x - (x + 21)$

$\left(x\right)\left(4x\right) + 7 = \left(5x\right)\left(-x\right) - 21$

$-3x + 7 = 4x - 21$

$+3x \qquad\quad +3x$

$7 = 7x - 21$

$+21 \qquad +21$

$\dfrac{28}{7} = \dfrac{7x}{7}$

$\boxed{4 = x}$

7. BACKPACKING Guido and Raoul each went backpacking in Glacier National Park. The expressions $4(d + 2) - 2d$ and $3(2 + d)$ represent the respective distances Guido and Raoul hiked each day. On what day number d will their distance hiking be the same? *Remember → To find when two expressions will be equal to one another, you set them equal to one another using an equal sign and solve.*

$$4(d+2)-2d = 3(2+d)$$
$$4d+8-2d = 6+3d$$
$$2d+8 = 6+3d$$
$$\underline{-2d \qquad -2d}$$
$$8 = 6+d$$
$$\underline{-6 \quad -6}$$
$$\boxed{2 = d}$$

Day 2

8. SAVINGS The table at the right shows the savings account balance of each of the Alvarez siblings.

a. Write an equation to find the amount of money in Petros's account if the total of all of their accounts is $148.

$$s + 2(s+3) + 4s - 5 = 148$$

Sibling	Account Balance
Cindy	s
Petros	$2(s + 3)$
Nila	$4s - 5$

b. Solve the equation from part *a* to find the amount of money in Petros's account.

$$s+2(s+3)+4s-5 = 148$$
$$s+2s+6+4s-5 = 148$$
$$7s+1 = 148$$
$$\underline{-1 \qquad -1}$$
$$\frac{7s}{7} = \frac{147}{7}$$
$$s = 21$$

Petros $s = 21$

$2(21+3)$

$2(24) = 48 in his account

9. LAWNS Luisa mows lawns during the summer. She charges $15 if she cuts the grass but charges $5 more if she also trims the grass. Last week she trimmed 5 more yards than she cut. If she made $415 last week, how many yards did she trim?

$$15(x-5) + 20x = 415$$

$x =$ yards trimmed

$$15x - 75 + 20x = 415$$

$$35x - 75 = 415$$

$$+75 \quad +75$$

$$\frac{35x}{35} = \frac{490}{35}$$

$$\boxed{x = 14 \text{ yards}}$$

A) $12 + 4n = 4(n + 3)$

$12 + 4n = 4n + 12$

$\underline{-4n \quad -4n}$

$12 = 12$

Infinite Solutions

B) $-4(2 - y) + 3y = 3(y - 4)$

$-8 + 4y + 3y = 3y - 12$

$-8 + 7y = 3y - 12$

$\underline{\quad -3y \quad -3y}$

$-8 + 4y = -12$

$\underline{+8 \qquad +8}$

$\dfrac{4y}{4} = \dfrac{-4}{4}$

$y = -1$

c) $4(8n-1) = 19 + 32n$

$32n - 4 = 19 + 32n$

$-32n \qquad\qquad -32n$

$-4 \neq 19$

No Sol