Name: _____ Date: Sept 13 Hour: ____Alg 1___

Unit 1B Day 18: Multi-step Equations Practice Day 2

Focus Question: Can I solve an equation with multiple steps?

Solve the following equations on your own paper.

1) $2(3y - 7) + 1 = 4y - 13 + 2y$

2) $3(4n - 7) - 2(5n - 6) = 11n + 5$

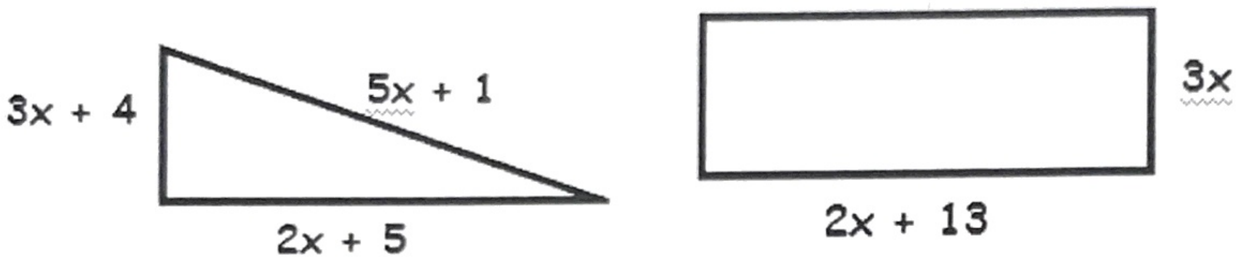
3) $-6(2 - k) + 3k - (4 + 7k) = 2$

4) $\frac{3}{2}x \square \frac{5}{4} = 2 \square \frac{7}{3}x$

5) $\frac{2}{5}m = \frac{1}{3}(2m \square 12)$

6) $\frac{6x-1}{-5} = -4$

7) Find x such that the two shapes have equal perimeter. What is the perimeter?



distance around the shape (add all side lengths)

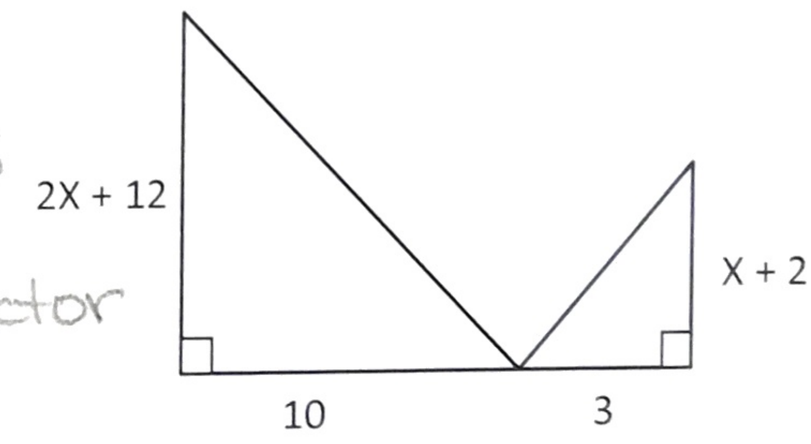
8) Do all equations have solutions? No

9) What are the possible solutions to a degree 1 polynomial equation?

$\emptyset$ or ∞ or 1

10) The triangles below are similar. Find the value of x.

same shape & angles
diff side lengths
by a scale factor



11) $4x - \frac{1}{2} + 2x = 8x - 3 - \frac{3}{4}x$

12) $24a - 22 = -4(1 - 6a)$

13) $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

14) Molly earned money last week doing odd jobs. She earned ½ of her money on Sunday babysitting for the neighbor. She earned another $\frac{2}{5}$ of her money on Tuesday by washing dishes at her friend's parents restaurant. Her mom gave her $10 for mowing the yard on Friday. How much money did Molly earn from babysitting?

⑥ $\frac{6x-1}{5} = -4 \cdot -5$

$-5 \cdot \frac{6x-1}{5} = -4 \cdot -5 \cdot -5$

$6x - 1 = 20$

$+1 \quad +1$

$\frac{6x}{6} = \frac{21}{6} \div 3 \div 3$

$x = \frac{7}{2}$

⑤ $\frac{2}{5}m = \frac{1}{3}(2m - 12)$

$\frac{2}{5}m = \frac{1}{3}(2m) + \frac{1}{3}(-12)$

$15 \cdot \frac{2}{5}m = 15 \cdot \frac{2}{3}m - 4 \cdot 15$

$6m = 10m - 60$

$-10m \quad -10m$

$-4m = -60$

$\frac{-4m}{-4} = \frac{-60}{-4}$

$m = 15$

⑦ $3x + 4 + 2x + 5 + 5x + 1 = (2x + 13 + 3x)2$

$10x + 10 = (5x + 13)2$

$10x + 10 = 5x(2) + 13(2)$

$10x + 10 = 10x + 26$

$\emptyset$ diff const, same coeff

The perimeter doesn't exist.

⑩ $\frac{10}{3} \neq \frac{2x+12}{x+2}$

$10(x+2) = 3(2x+12)$

$10(x) + 10(2) = 3(2x) + 3(12)$

$10x + 20 = 6x + 36$

$-6x \quad -6x$

$4x + 20 = 36$

$-20 \quad -20$

$\frac{4x}{4} = \frac{16}{4}$

$x = 4$

(14) m is the money molly earned

$10 \cdot \frac{1}{2}m + \frac{2 \cdot 10}{5}m + 10 \cdot \frac{10}{} = m \cdot 10$

$5m + 4m + 100 = 10m$

$9m + 100 = 10m$

$-9m \quad\quad -9m$

$100 = m$

From babysitting: $\frac{100}{2} =$ $\boxed{\$50}$