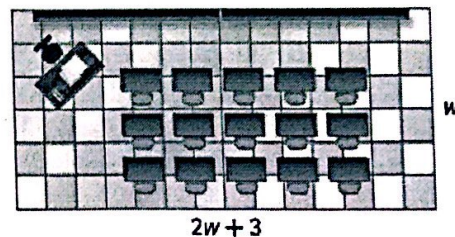


## Solving Equations – Challenge Worksheet

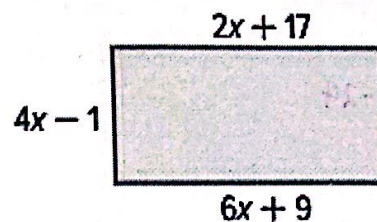
- MP Persevere with Problems** A diagram of a room is shown. If the perimeter of the room is 78 feet, what is the area of the floor of the room? (Lesson 3)

$$324 \text{ ft}^2$$



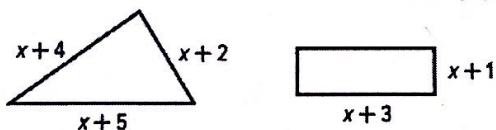
- MP Persevere with Problems** Find the area of the rectangle at the right.

$$147$$



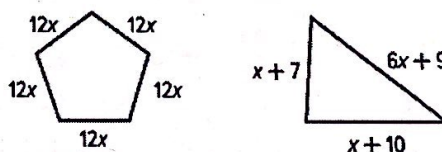
- MP Reason Abstractly** Write an equation to find the value of  $x$  so that each pair of polygons has the same perimeter. Then solve.

20.



$$x = 3$$

21.



$$x = \frac{1}{2}$$

- MP Persevere with Problems** Solve  $(x + 5)(x + 5) = 49$ . (You haven't learned the way to solve this yet. So use guess and check!)

$$x = 2 \text{ or } x = -12$$

You and your friend both bought some gum. Your friend spent three times as much as you did. Altogether, you spent \$4.80. How much did you each spend on gum?

$$\text{You: } \$1.20$$

$$\text{Friend: } \$3.60$$

Solve each equation.

$$1) 4\frac{1}{3}x + 16 = 2\frac{2}{3}x + 21$$

$$x=3$$

$$2) \frac{1}{2}x + 12 = \frac{3}{4}x + 8$$

$$x=16$$

$$3) \frac{5}{6}x + 16 = -\frac{1}{4}x - 10$$

$$x=-24$$

$$4) \frac{1}{3}x + \frac{7}{6} = \frac{3}{4}x + \frac{2}{8}$$

$$x = \frac{11}{5} \text{ or } 2\frac{1}{5} \text{ or } 2.2$$

$$5) 8(x - 2) + 3(2x + 3) = 3(x - 6)$$

$$x=-1$$

$$6) 4 - 2x - 6x + 3 = 3x + 12 - 11x$$

No Solution

$$7) -3(2x - 5) + 7x - 14 + x - 4 + 2(10 + 2x) = 18 - 11x + 4(2 - x + 4x) - 0.5x + \frac{1}{2}x - 19$$

$$x=-2$$

I am thinking of a number. If I multiply that number by four, or divide that number by four, or add four to that number, or subtract four from that number, I would get four new numbers. When I add those four new numbers together, I get 400. What number am I thinking of? (For example, if I was thinking of the number 12, my four new numbers would be 48, 3, 16, and 8. The sum of those is 75. So 12 is not my number.)

Not telling!