1. The length of a rectangular pool is to be four times its Width, and a sidewalk of Width 6 feet will surround the pool. If a total area of 1440$ft^{2}$ has been set aside for construction, what are the dimensions of the pool?
2. Let x = width

 4x = length

A = $l\*w$

$$1440=\left(x+12\right)\left(4x+12\right)$$

$$1440=4x^{2}+60 x+144$$

$$0=4x^{2}+60x-1296$$

$$0=x^{2}+15x-324$$

$0=\left(x+27\right)\left(x-12\right)=0$ $x=12$

12x48

1. An airplane flew with the wind for 30 minutes and returned the same distance in 45 minutes. If the cruising speed of the airplane was 320mi/hour, what was the speed of the wind?
2. $D=r\*t$

X = speed of wind

$$Distance\_{with wind}=Distance\_{against wind}$$

$$\left(320+x\right)\left(\frac{1}{2}\right)=\left(320-x\right)\left(\frac{3}{4}\right)$$

$$640+2x=960-3x$$

5x = 320

X = 64 mi/hr

1. A rectangle kitchen is twice as long as it is wide, and its perimeter is 84 feet. Find the dimensions of the kitchen.
2. Let w = width

& 2w = length

$$2\left(2w\right)+2w=84$$

$$4w+2w=84$$

$$6 w=84$$

L = 2(14) = 28

W = 14

1. A dog food company wants to create a 6 pound sample Halloween mixture of orange & black dog biscuits. The orange biscuits sell for $0.90 per pound, while the custom black biscuits sell for $1.20 per pound. The company wants to sell the sample mixture for $1 per pound. How many pounds of each colored dog biscuit should they use in this sample Halloween mixture?
2. Orange Black Mixture

**=**

**+**

1

6

1.20

6-x

.90

x

$$.90x+1.20\left(6-x\right)=1\left(6\right)$$

$$.9x+7.2-1.2x=6$$

$$-\frac{.3x}{-.3}=-\frac{1.2x}{-.3}$$

$$x=4 $$

4 orange biscuits (lbs) & 2 black biscuits (lbs)

1. It takes a boy 90 minutes to mow the lawn, but his sister can mow it in 60 minutes. How long would it take them to mow the lawn if they worked together using two lawn mowers?
2. $x=desired time$

$$\left(180x\right)\*(\frac{1}{90}+\frac{1}{60})=(\frac{1}{x})\*(180x)$$

$$2x+3x=180$$

$$\frac{5x}{5}=\frac{180}{5}$$

$$x=36 minutes$$

1. A grocer mixes peanuts that cost $2.49 per pound & walnuts that cost $3.89 per pound to make 100 pounds of a mixture that costs $3.19 per pound. How much of each kind of nut is put in the mixture?

=

+

100

3.19

100-x

3.89

X

2.49

$2.49x+3.89\left(100-x\right)=100(3.19$)

$$2.49x+389-3.89x=319$$

-1.4x = -70

X = 50

50 lbs peanuts

50 lbs walnuts

1. How many pounds of skittles, valued $1.75 per lb., mixed with 2 lbs. of M&M’s, valued at $2.50 per pound, to produce a mixture worth $2.00 per pound?
2. Skittles M&M’s Total

=

+

X+2

2.00

2

2.50

X

1.75

$$1.75x+2\left(2.50\right)=z(x+2)$$

$$1.75x+5=2x+4$$

$$\frac{1}{.25}=\frac{.25x}{.25}$$

$$4=x$$

4 lbs Skittles