

Algebra I  
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1) 14 8-hr shifts	5) 65 Cal/orange 35 Cal/Peach
2) 600 round trip tickets $x=20$	6) 7 Cal/Celery 20 Cal/Carrot
3) 306 lbs pecans $x=102$	7) 9 x 24cm - Red 14 x 22cm - Blue
4) 9 hrs space movies $x=3$	8) 24cm x 48cm - First 21cm x 56cm - Second

- 2) Find the number of round-trip commuter rail tickets sold.  
 (1) Thirty times as many round trip tickets as 12-ride tickets were sold.  
 (2) The total number of tickets sold represented 1440 rides.

trips / ticket x # of tickets = total trips

round trip	2	30x	60x
12-ride	12	x	+ 12x
			1440

Let x = # of 12 ride tickets  
 30x = # of round trip

$$60x + 12x = 1440$$

Finish steps!

$$x = 20$$

{20}

- 4) Find the amount of time Joel spent watching space adventure movies.  
 (1) He saw twice as many 1 1/2 hour space movies as he did 2 h mysteries.  
 (2) He spent a total of 15 h watching movies.

# x length = total time

Mystery	x	2	2x
Space	2x	1.5	+ 3x
			15

Let x = mysteries  
 2x = space movies

$$2x + 3x = 15$$

- 5) Find the number of Calories in an orange and in a peach.  
 (1) An orange has 30 Cal more than a peach.  
 (2) Thirteen peaches have as many Cal as 7 oranges.

#Cal x amount Food = total Cal.

Orange	x+30	7	7(x+30)
Peach	x	13	13x

Let x = Peach's Calories  
 x+30 = Orange's Calories

$$7(x+30) = 13x$$

- 6) Find the number of Calories in a stalk of celery and in a carrot.  
 (1) A carrot has 13 Cal more than a celery stalk.  
 (2) Five carrots and ten celery stalks have only 170 Cal.

	#Cal	x amt	c total
Celery			
Carrot			+ 170

- 7) The length of a red rectangle is 15 cm more than its width w. A blue rectangle, which is 5 cm wider and 2 cm shorter than the red one, has perimeter 72 cm. Make a sketch of the rectangles expressing all dimensions in terms of w. Then find the dimensions of each rectangle.

Red Rectangle: length  $w+15$ , width  $w$ , height  $9\text{cm}$ , perimeter  $24\text{cm}$

Blue Rectangle: length  $w+13$ , width  $w+5$ , height  $14\text{cm}$ , perimeter  $P=72\text{cm}$

$$(w+5)(w+13) + (w+5)(w+13) = 72$$

$$4w + 36 = 72$$

$$4w + 36 - 36 = 72 - 36$$

$$\frac{4w}{4} = \frac{36}{4} \quad w = 9$$

- 8) The length of a rectangle is twice its width w. A second rectangle, which is 8 cm longer and 3 cm narrower than the first, has perimeter 154 cm. Make a sketch of the rectangles expressing all dimensions in terms of w. Then find the dimensions of each rectangle.

Rectangle 1: length  $2w$ , width  $w$

Rectangle 2: length  $2w+8$ , width  $w-3$ , perimeter  $P=154\text{cm}$

$$(2w+8) + (w-3) + (2w+8) + (w-3) = 154$$