Answers:

1.	$\frac{1}{2}$ or .5	**2.**	1.8 or 9/5	**3.**	100	**4.**	25/6 or 4.16 or 4.17
5.	120	**6.**	33 or 63 or 93	**7.**	0	**8.**	99.9
9.	45	**10.**	25				

Solutions:

1. If $(\frac{1}{5}x)\,(10y) = 1$, what is the value of xy?

$$(\frac{1}{5}x)\,(10y) = 1$$

$$2xy = 1$$

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

Grid in 1/2 or .5

2. A person bought 12 cards for $3.00. The next day the price of the cards was $0.40 each. How much in dollars, did the person save on the 12 cards by buying them for $3.00? (disregard the $ sign when gridding your answer)

At $0.40 each, the 12 cards would be cost $4.80. The person saved $1.80 by buying them for $3.00.

Grid in 1.80 or 1.8 or 9/5

3.   If lines ℓ, m, and n intersect as shown below, what is the value of x?
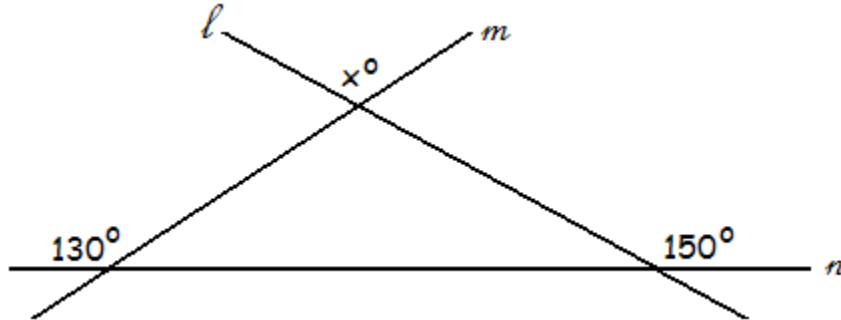
If two angles are adjacent (i.e., have a common vertex and share a side) their non-shared sides form a line and they are supplementary (add to 180°).

Fill in the missing angle measurements, 30° and 50°. Then, since the three angles of a triangle add to 180°, the third angle must equal 100°. Angle x would also equal 100° since it is a vertical angle.
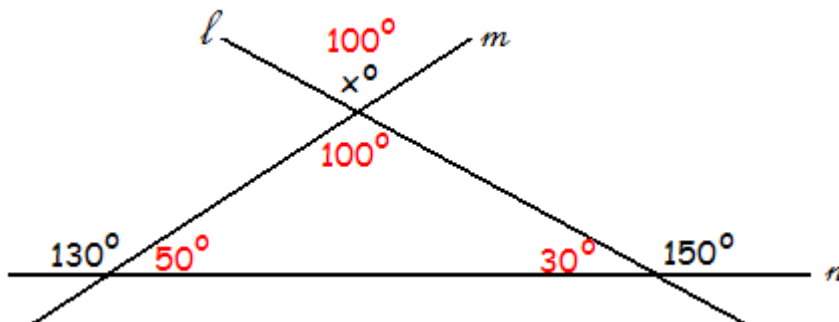
Grid in <mark>100</mark>

4.   If $\frac{5}{6} = \frac{x}{5}$, what is the value of x?

Since this is a proportion, cross-multiply.

$$25 = 6x$$

$$x = \frac{25}{6}$$

Grid in 25/6 or 4.16 or 4.17

5.   A wire of uniform diameter and composition that weighs 32 pounds is cut into two pieces. One piece is 90 yards long and weighs 24 pounds. What was the length, in yards, of the original wire?

Solve using a proportion

$$\begin{array}{cc} & \text{weight} \quad \text{length} \\ \text{part} & \dfrac{24}{32} = \dfrac{90}{x} \\ \text{whole} & \end{array}$$

Since this is a proportion, cross-multiply.

$$(32)(90) = 24x$$

$$2880 = 24x$$

$$x = 120$$

The original wire is 120 yards in length.

Grid in <mark>120</mark>

6.   Grid one positive integer greater than 10 and less than 100 that has a remainder of 3 when divided by 5 and by 6.

The number 30 is divisible by 5 and 6. The number 33 has a remainder of 3 when divided by 5 and 6. The numbers 63 and 93 would also be correct.

Grid in <mark>33</mark> or <mark>63</mark> or <mark>93</mark>

7.   For what value of k is $(k + 3)^2 = (k - 3)^2$?

The only value of x that would make this equation true is k = 0. In this case:
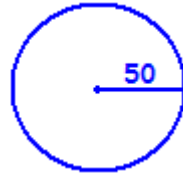
$$(0 + 3)^2 = (0 - 3)^2$$

$$(3)^2 = (- 3)^2$$

$$9 = 9 ☑$$

Grid in <mark>0</mark>

8.   The circle below has radius 50. X and Y are points(not shown) on the circle and segment XY does not passthrough the center of the circle. What is the

greatestpossible length of XY that the answer grid can accommodate?

If segment XY is drawn in as close as possible to a diameter of the circle, its length would be 99.9. Grid in as many decimal places as possible to fill all the spaces in the grid.

Grid in <mark>99.9</mark>

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9.   Seven consecutive integers are listed in increasing order. If the sum of the first three integers is 33, what is the sum of the last three integers?

Seven consecutive integers would be:

n $n + 1$ $n + 2$ $n + 3$ $n + 4$ $n + 5$ $n + 6$

Since the first three add to 33, then

$$n + n + 1 + n + 2 = 33$$

$$3n + 3 = 33$$

$$3n = 30$$

n = 10

Since n = 10, the sum of the last three integers would be

n + 4= 14   n + 5 = 15   n + 6 = 16
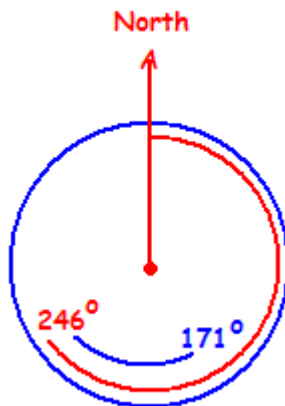
14 + 15 + 16 = 45

Grid in 45

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10. In flying a plane, a "standard rate turn is one in which the rate of turning is 3 degrees per second. A "heading is the number of degrees in a clockwise direction from north to the path of the plane. If a plane has a heading of 246° and makes a standard rate turn to a heading of 171°, what is the least number of seconds required for this turn?

The plane starts at a heading of 246° and turns to a heading of 171°. It has turned 75°. Since a standard rate turn is 3 degrees per second, it would take the plane 25 seconds to make the turn.

Grid in 25