

Instructions: Show all work. Answers without work will not receive full credit. Guess and check is not an algebraic method. Give exact answers unless specifically asked to round.

1. Find the value of the number satisfying the expression: 40% of what number is 122?

$$\frac{.4x = 122}{.4} \quad x = 305$$

2. A wool suit was marked 30% off and finally sold for \$490. What was the original price of the suit?

$$x - .3x = 490$$

$$.7x = 490$$

$$x = \frac{490}{.7}$$

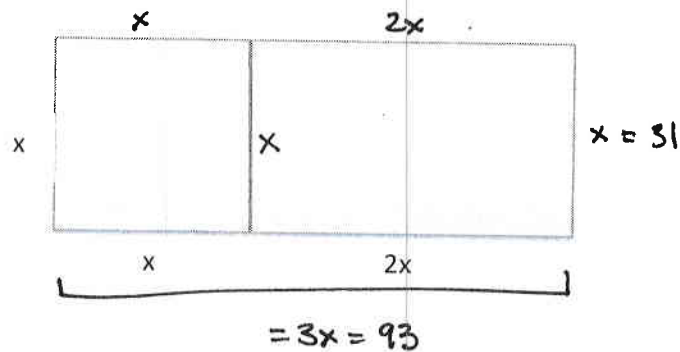
$$x = \$700$$

3. A rectangular plot has been divided into two fields so that the length of one field is twice that of the other, with the smaller field square. If it takes 279 meters of fencing to enclose the field, find the dimensions of the original plot.

$$\text{fencing} = 3x + 2x + 4x$$

$$\frac{279}{9} = \frac{9x}{9}$$

$$x = 31$$



plot was 31 by 93

4. Two trains leave a city on parallel tracks, traveling the same direction. The passenger train is going twice as fast as the freight train. After 45 minutes, the trains are 30 miles apart. Find the speed of each train in miles per hour.

$$d = rt$$

$$d_p - d_f = (2x)(.75) - (x)(.75) = 30$$

$$1.5x - .75x = .75x = \frac{30}{.75}$$

$$x = 40$$

freight train is going

40 mph

passenger train is going 80 mph.