

Create a linear system to model each of the following situations. Define your variables. Do not solve.

1a) The larger of two numbers is three times the smaller number. The sum of the numbers is 60.

b) Jenny determined that the numbers were 15 and 45. Verify that she is correct.

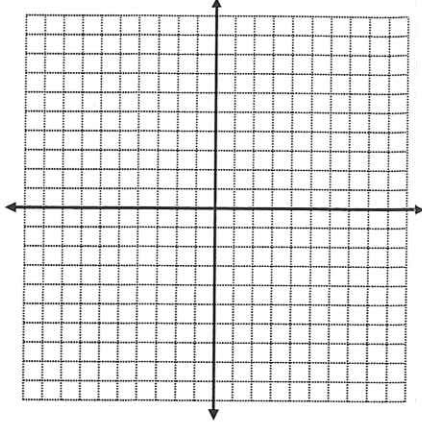
2a) The perimeter of a rectangle is 40 cm. The length is 4 cm longer than the width.

b) Bob determined that length is 10cm and the width is 6cm. Verify that he is correct.

2. Solve each of the following systems by graphing. Clearly label scale and axes.

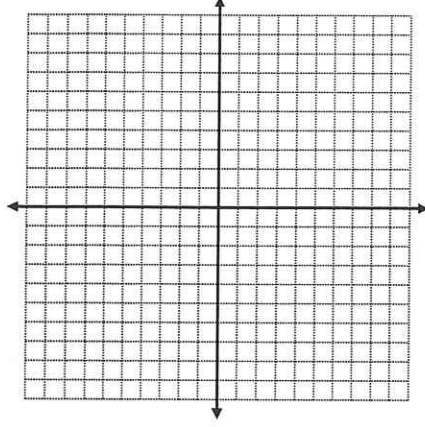
a) $y = \frac{1}{2}x - 3$

$y = \frac{3}{2}x - 1$



Solution: $(-2, -4)$

b) $x + 2y = -4$
 $3x - 4y = -12$



Solution: $(-4, 0)$

3. Solve each of the following systems of equations by substitution.

a) $y = 3x + 13$
 $2x = y - 9$

b) $x + y = 9$
 $2x + y = 11$

$(-4, 1)$

$(2, 7)$

4. Solve each of the following systems of equations by elimination.

a) $x + y = 5$
 $3x - y = 7$

b) $2x + 7y = 33$
 $2x + y = 3$

$(3, 2)$

$(-1, 5)$

c) $5x - 2y = 4$
 $3x + y = 9$

d) $\frac{x}{2} + \frac{y}{3} = 1$
 $\frac{x}{4} - \frac{2y}{3} = -1$

$(2, 3)$

$(\frac{4}{5}, \frac{9}{5})$

5. Define your variables, create a linear system to model the following situation, then **solve** using the method of your choice:

Alex invested \$1500, part at an annual interest rate of 2.5% and the rest at an annual interest rate of 3.5%. After one year, the amount invested at 3.5% had earned \$40 more interest than the amount invested at 2.5%. How much money did Alex invest at each rate?

$\$1291.67$ at 3.5%

$\$208.33$ at 2.5%