

Section 9.2 Solving Systems through elimination

1. Solve using elimination.

a) $x + y = 4$
 $x - y = 10$ $(7, 3)$

b) $5x - 3y - 2 = 0$
 $-4x + 3y - 2 = 0$ $(4, 6)$

c) $5 = 6x + 2y$
 $2y = x + 5$ $(0, 2.5)$

d) $3x + 2y = 0$
 $8x + 7y = 5$ Verify your answer
 $(-2, 3)$

f) $2(x+y) = -2 - 4x$
 $14x + 27 = 3x + y$

$$\begin{array}{r} 2(x+y) = -2 - 4x \\ \underline{2x + 2y = -2 - 4x} \\ 14x + 27 = 3x + y \\ \underline{-3x - 27 = -3x + y - 27} \\ 11x = -28 \\ x = -\frac{28}{11} \end{array}$$

2. The difference of two numbers is 18. Their sum is 42. Determine the numbers.

model two equations for the system
 use x, y

The two #'s are $30, 12$

3. Max invested \$15 000 in two different funds. One earned 6% interest in the first year and the other earned 8%, for a total of \$1100 in interest. Determine how much he invested in each fund.

$a + b = 15000$
 $0.06a + 0.08b = 1100$

let a be one fund
 & b be another fund
 $6\% = \frac{6}{100} = 0.06$

$8x + y = 2$
 $4(3x + \frac{1}{4}y = 0) \rightarrow 12x + \frac{1}{4}y = 0$

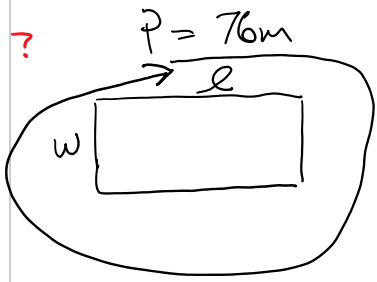
$$\begin{array}{r} 8x + y = 2 \\ \underline{-12x + \frac{1}{4}y = 0} \\ -4x = 2 \\ x = -\frac{1}{2} \end{array}$$

Solution $(-\frac{1}{2}, 6)$

The amt invested in each fund was \$10000 or \$5000

4. The perimeter of a rectangle is 76 m. The width is doubled and the length is halved. The new rectangle has a perimeter of 62 m. Determine the dimensions of the original rectangle.

$w + l = 76$
 $2w + \frac{l}{2} = 62$



The dimensions are $l = 30m$ & $w = 8m$