

Intelligence is useless without perseverance.

For each problem define your variables, write a system of equations, and solve the system of equations.

1. At the movies, a customer can purchase a refillable “Mega Mug” for \$15.25, then pay \$1.75 every time they want to fill the mug with soda. Or a customer could just buy a medium soda in a disposable cup which holds the same amount as the Mega Mug, and pay \$5 each time. How many times would a customer have to use the Mega Mug to make it worth the price?

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system.*



2. A stack of 11 original Oreo cookies is exactly 130 mm tall. A stack of 9 Double Stuf Oreos is also exactly 130 mm tall. How thick is one wafer? How thick is the filling in an original cookie? Assume (this has been scientifically proven) that Double Stuf Oreos have exactly twice as much filling as original Oreos.

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system.*

3. Find two numbers whose sum is 58 and whose difference is 16.

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system.*

4. The sum of two numbers is 36. One number is two more than the other. Find the numbers.

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system.*

5. Jack's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 4 senior citizen tickets and 7 child tickets for a total of \$133. The school took in \$73 on the second day by selling 4 senior citizen tickets and 3 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system and tell what the answers mean.*

6. The perimeter of a rectangle is 876 cm. The length is 1 cm less than three times the width. Find the length and width.

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system and tell what the answers mean.*

7. Kristin and Trevon each improved their yards by planting rose bushes and shrubs. They bought their supplies from the same store. Kristin spent \$42 on 3 rose bushes and 3 shrubs. Trevon spent \$54 on 7 rose bushes and 3 shrubs. What are the costs of one rose bush and the cost of one shrub?

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system and tell what the answers mean.*

8. Two angles are complementary. One angle is 42° more than one-half the other. What are the measures of the two angles?

a) *What are your variables? What do they represent?*

b) *Write the 2 equations.*

c) *Solve the system and tell what the answers mean.*