

## Word Problems (2.4)

Read the problem. Draw a picture if needed. Understand what is being asked

Assign a variable to represent an unknown value and represent all unknowns in terms of the variable.

Write an equation by translating an English sentence.

Solve the equation.

State the answer with words if appropriate. Does it seem reasonable?

Check the answer in the words of the original problem.

(1) The product of 4, and a number decreased by 7, is 100. What is the number?

LET X = \_\_\_\_\_

(2) The product of 4 and a number, decreased by 7, is 100. Find the number.

LET X = \_\_\_\_\_

(3) If five times the smaller of two consecutive integers is added to three times the larger, the result is 59. Find the integers.

LET X = the first integer, then

\_\_\_\_\_ = the next consecutive integer.

(4) If the sum of three consecutive odd integers is 69, what are the integers?

LET  $X =$  the first integer, then

\_\_\_\_\_ = the next consecutive ODD integer.

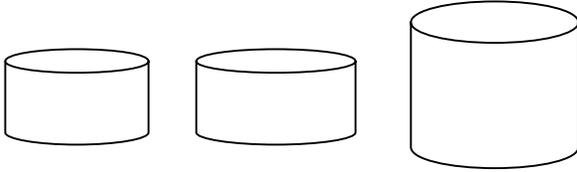
\_\_\_\_\_ = the largest consecutive ODD integer.

(5) Example 3: The owner of PJs Coffeehouse found that on one day the number of orders for tea was  $\frac{1}{3}$  the number of orders for coffee. If the total number of orders for the two drinks was 76, how many order were placed for tea.

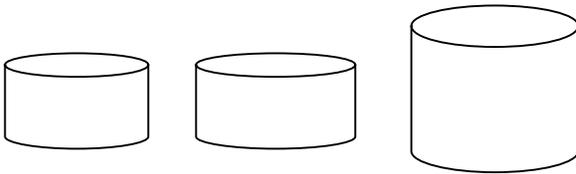
(6) Homework #24: In a mixture of concrete, there are 3 lb. of cement mix for every 1 lb. of gravel. If the mixture contains a total of 140 lb. of these two ingredients, how many pounds of gravel are there?

### MIXTURE PROBLEMS

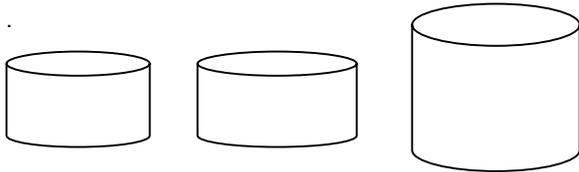
Number Example: 12 gallons of 50% salt solution is mixed with 20 gallons of 10% salt solution. What do we get?



Example: 2.7 #16: How many liters of 25% acid solution must be added to 80 L of 40% solution to get a solution that is 30% acid



Example: (2.7: #20) How many liters of a 60% acid solution must be mixed with a 75% solution to get 20L of a 72% solution?



**Simple Interest**  
 **$I = Prt$**

Number Example:

Invest \$1000 at 3% interest for one year, you'll earn ----- in interest

Invest \$500 at 10% interest for one year, you'll earn ----- in interest

All together, you'll earn \_\_\_\_\_.

Example: (2.7 #26) La Shondra inherited some money. She invested part of the money in a savings account earning 2% interest and \$3000 more than that in a different account earning 3% interest. Her annual interest income was \$690. How much did she invest at each rate?

---

**Money problems**

Number Example: Suppose you have 3 five dollar bills, 2 ten dollar bills and 4 twenties.  
How many bills do you have?

How much money do you have? (What's its *value*?)

Example (2.7: #30): A coin collector has \$1.70 in dimes and nickels. She has 2 more dimes than nickels.  
How many nickels does she have?

## Distance Problems

Distance = Rate X Time

Number Example:

- (1) If you travel at a speed of 40 miles per hour for 2 hours, how far do you travel?
- (2) How long will it take to travel 300 miles if you travel at rate of 60 miles per hour?

Number example: Suppose two cars leave PCC and travel in opposite directions. If one car travels 20 miles east and the other travels 50 miles west, how far apart are the cars?

Example (2.7 # 48): A train leaves Kansas City and travels north at 85 km per hour. Another train leaves at the same time and travels south at 95 km per hour. How long will it take before they are 315 km apart?

	R	T	D

Number Example: Suppose you go hiking with a friend but he hikes faster so he goes on ahead. At the end of 2 hours he has hiked 7 miles and you have hiked 5 miles. How far ahead of you is he?

Example (2.7 #50): From a point on a straight road, Lupe and Maria ride bicycles in the same direction. Lupe rides 10 mph and Maria rides 12 mph. In how many hours will they be 5 miles apart?