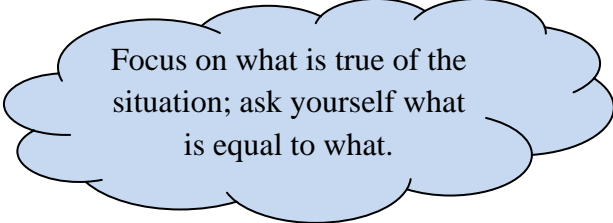


Elementary algebra
Class notes

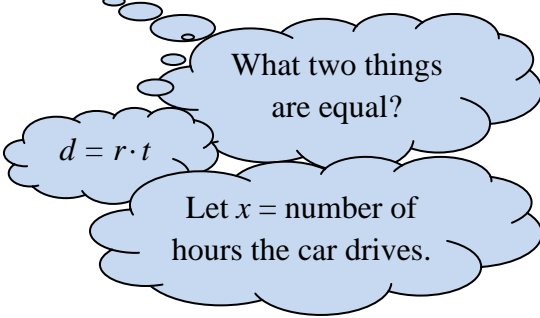
Distance, Simple Interest, and Denominations of Money Problems (section 2.7)



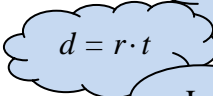
Focus on what is true of the situation; ask yourself what is equal to what.

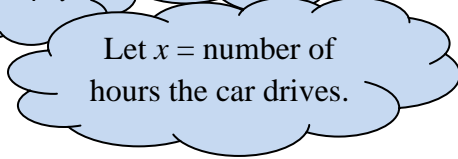
expl 1: Solve.

A bus leaves a rest area at 12:00 traveling at 50 mph. A car leaves the rest area, following the bus, one hour later traveling at 70 mph. How long will it take the car to overtake the bus?



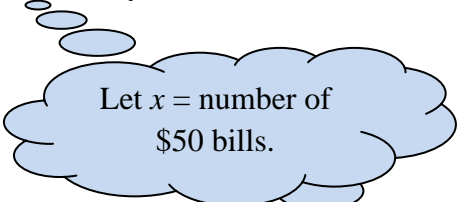
What two things are equal?


$$d = r \cdot t$$

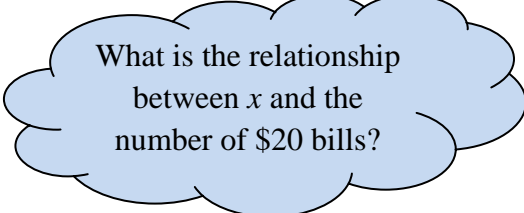


Let x = number of hours the car drives.

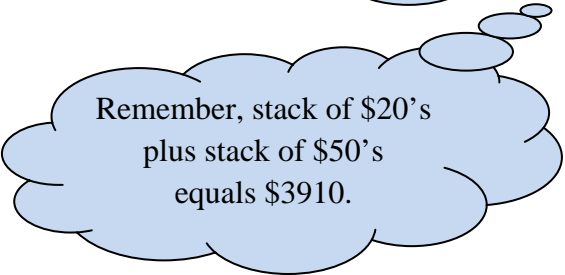
expl 2: The King is in his Counting House counting out \$20 and \$50 bills. There are six times as many \$20 bills as \$50 bills and the total of the money is \$3910. How many of each denomination does the King have?



Let x = number of \$50 bills.

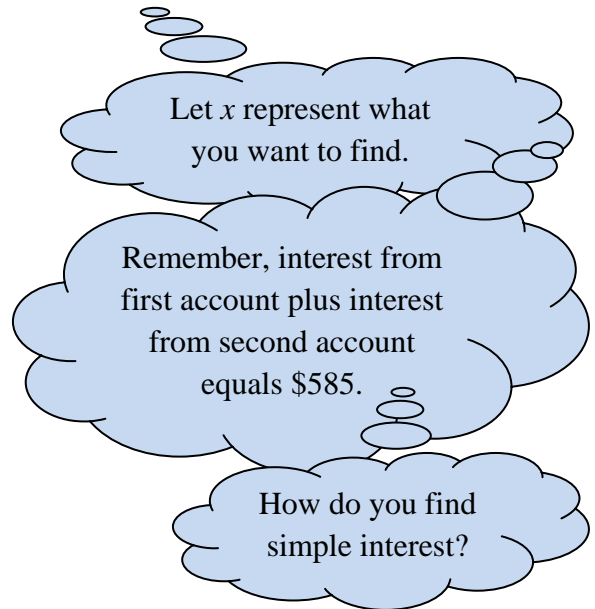


What is the relationship between x and the number of \$20 bills?

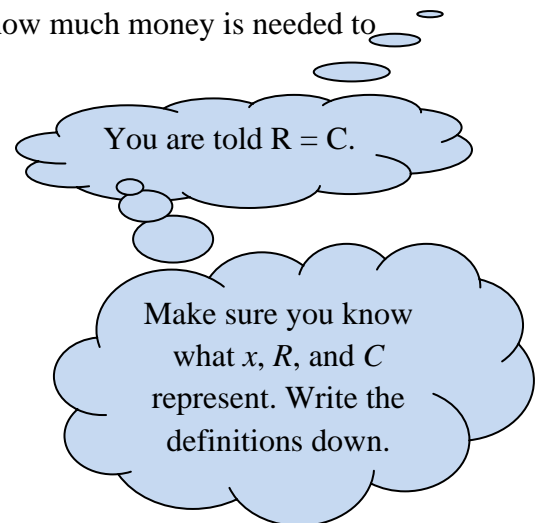


Remember, stack of \$20's plus stack of \$50's equals \$3910.

expl 3: If \$3,000 is invested at 6% annual simple interest, how much should be invested at 9% annual simple interest so that the total yearly income from the two investments is \$585?



expl 4: To “break even” in business, revenue R (aka income) must equal cost C of production, or $R = C$. The revenue from selling x number of computer motherboards is given by $R = 60x$. The cost of producing these x motherboards is given by $C = 50x + 5000$. Find how many motherboards must be produced and sold to break even. Find how much money is needed to produce this many motherboards.



Worksheet: Story Problems Are My Friends:

This worksheet gives guided practice for four types of story problems from this and the previous sections. It focuses on using verbal models to form the equations.

To be successful at story problems, try to capture what must be equal to what and use that to form an equation. A verbal model is a useful precursor to an equation because it allows you to write the equation in plain words before you start plugging in the algebra. Read it over carefully to be sure it makes sense.

It often helps to imagine doing what is described in the problem, like separating money into piles or mixing solutions together. A picture can also be extremely helpful.