

MATH 131 - Word Problems

Translate from words to mathematical expressions. Use x for the unknown number.

- 8 more than a number _____ 42% of a number _____
 3 less than a number _____ The product of 2 and the sum of a number and 4 ___
 Twice a number _____ The sum of 7 and the quotient of 3 and a number __
 7 subtracted from a number _____ A number less 9 _____

Solve each of the following word problems. As discussed in class, you must

- show what your variable represents,
- set up and solve an algebraic equation and
- be sure to answer the question which is asked.

- (1) Answer the following questions concerning this word problem:
 Sergio rides his bike from school to the beach at a speed of 16 mph and returns over the same road at 12 mph. The round trip takes 7 hours. How long and how far from the school is the beach?

Given the following table, with t representing the time from school to the beach,

| | R | T | D |
|----------------|----|-----|-------|
| To the Beach | 16 | t | $16t$ |
| Back to school | | | |

- (a) What, according to the table, does " $16t$ " represent? _____
- (b) Fill in the rest of the table.
- (c) What relationship can you find about distance (to the beach verses the distance back to the school), in WORDS? (This is unlike any we have done so far...think .)
- (d) Using the above, set up an equation and solve. Then answer the questions asked.
- (e) Check the answer in the words of the original problem.

- (2) A piggy bank contains dimes and quarters only. There are twice as many dimes as quarters. If there is \$3.60 in the bank, how many quarters are there? How many dimes?.

- (3) The perimeter of a rectangle is 32 feet. If the length is one more than twice the width, find the dimensions of the rectangle.

- (4) Before you start trying to solve this problem, think. Take a guess as to how much of each solution you think you might need. Would you expect to need more of the 10% or 6%?

How many liters of a 6% acid solution must be added to a 10% acid solution to make 12 gallons of a acid solution that is 9% acid?

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- (5) Todd invested some money from which he earns a total annual income of \$34. He invested a certain amount money in an account paying 5% interest rate and twice that amount in bonds paying 6% per year. How much did he invest at each rate?

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- (6) In 1995, the average cost of tuition and fees at private four year universities in the U.S. was \$12,216 for full time students. By 2005, it had risen approximately 73.8%. To the nearest dollar, what was the approximate cost in 2005??