Math 9 Lesson 3-12 Word Problems

Part 1: Writing Equations and Expressions

Write each sentence as an algebraic expression (without an = sign) or an equation (with an = sign). Be sure to identify a variable and state what it stands for. The first one is done.

1. a. The sum of a number and one-half of that number is 45.

 Answer: n is the number. n + = 45

b. Fifteen percent of a number added to that number is 10.35.

c. The sum of 2 consecutive odd numbers is 168.

d. The sum of 3 consecutive even numbers is 180.

e. A car going at n km/h has been on the road for 3hours, write the expression for distance traveled.

f. Find total coin values in terms of dollars: d loonies, m quarters, n dimes, p nickels and w pennies.

g. Find total length in terms of cm: P m, T cm, N mm.

h. A rectangle has width n cm. The length of the rectangle is 3 cm more than its width. The perimeter is 48 cm.

i. The length of a rectangle is twice its width. A rectangle of width n meter has an area of 162 m2.

j. The area of a triangle is 12 cm2. The height is twice the length of the base. The base is n cm.

k. The sum of the interior angles in a triangle is 180°. The first angle is half the size of the second angle. The third angle is 3 times as large as the first angle.

l. I spent $21.50 on buying boxes of toilet paper and Q-tips. The paper cost $1.25 each and the Q-tips cost 75¢ each. There are 20 boxes altogether.

m. John is 10 years old now. How old will he be n years from now? How old was he m years ago?

o. The square of a number diminished by eight is greater than three times the number.

p. If 2x + 7 is our first integer, write the next two consecutive integers.

q. The speed of the boat in still water is 20 km/h. The current of the stream is n km/h. What an expression for the speed of the boat for paddling up-stream as well as down-stream.

Part 2: Problem solving

1. The cost of a chartered bus was split evenly by twenty students. Prior to leaving, ten more students decided to go, thereby reducing the expense of each student in the original group by $1.50. What was the charge for the use of the bus?
2. Matt ate a total of 100 raisins over a five-day period. Each day he ate six more raisins than on the previous day. How many did he eat on the first day?
3. There are 16 coins altogether, some are dimes and the rest are quarters. The total is $2.50. Find the number of dimes.
4. The sum of three numbers is 92. The second number is 8 more than the first, and the third number is twice the second. What are the numbers?
5. The larger of two numbers is 5 times the smaller. Find the numbers if twice the smaller equals 3 less than the larger.
6. The perimeter of a triangle is 747 m. One side is 43 m longer than the shortest side. The third side is twice the length of the shortest side. Find the dimensions of the triangle.
7. Two angles of a triangle are equal. The third angle is twice as large as either of the other two. What is the measure of the largest angle?
8. A man uses 1120m of fencing to enclose a rectangular field. If the width of the field is 120m shorter than the length, find the measure of the length.
9. John purchased a dog, a cat, and a canary for $230. The canary cost a certain sum, the cat cost three times as much as the canary and the dog $20 more than the cat. Find the price of each.
10. FGHIJKLFGHIJKLFGHIJKL... Find the 300th letter in this pattern.
11. What is the sum of the first 3 odd numbers? 5 odd numbers? 7 odd numbers? 26 odd numbers? 2189 odd numbers?