# Problem Set #2.2 - Applications of Linear Equations

Name: _____ Class: _____

1.  A girl has a brother who is two years older than she is.  The sum of their ages is 28.  How old are the girl and her brother?

2.  Jake collects coins.  Nathan has twice as many as Jake.  Andrew has 8 less than 4 times what Jake has.  If you add Jake's and Nathan's together they will equal the number Andrew has.  How many do they each have?

3.  In September, Amanda deposited money in her savings account for the first time.  In October, she deposited 25 dollars more than she did in September.  In November, she deposited twice as much as she did in October.  If she had a total of $275 after these three deposits, how much money did she deposit in September?

4. Abby has nickels, dimes, and quarters in her pocket. The number of nickels is 1 more than twice the number of quarters. The number of dimes is 1 less than the number of quarters. If the value of the change in her pocket is 85 cents, how many of each coin does Abby have?

5. Three employees have salaries in the ratio 3:4:5. Altogether, they make $216,096. What are the three salaries?

6. One number is four times another number. If the smaller number is subtracted from the larger number, the result is the same as if the smaller number were increased by 30. What are the two numbers?

7.	The perimeter of a rectangular parking lot is 146 meters.  If the length is seven meters less than four times the width, find the dimensions of the parking lot.

8.	The degree measures of the angles of a triangle are 9x + 1, 8x − 2, and 9x − 1.  Find the value of each angle of the triangle.  Then classify the triangle by its angle measures.

9.	Find three consecutive even integers such that the sum of the first and the third is 132 less than five times the second.

10. A school sells tickets to the play at a cost of $7 for adults and $4 for children. Twice as many children attend as adults. If the school raises $225, how many adults attended?

11. The three angles of a triangle are in the ratio 2:3:7. Find the measure of the smallest angle.

12. Pammy's sister has a piggy bank. There are three times as many nickels as dimes, and 6 fewer quarters than dimes. There are no pennies. The total value of the coins is $2.00. How many of each coin are there?

**Answers:**

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| 1.) girl: 13 yrs old, brother: 15 yrs old | 2.) Jake: 8 coins, Nathan: 16 coins, Andrew: 24 coins | 3.) $50 |
| 4.) 2 quarters, 5 nickels, 1 dime | 5.) $54,024, $72,032, $90,040 | 6.) 15 and 60 |
| 7.) width: 16 m, length: 57 m | 8.) 64°, 54°, 62°, acute | 9.) 42, 44, 46 |
| 10.) 15 adults | 11.) 30° | 12.) 7 dimes, 21 nickels, 1 quarter |