

Applications of Linear Equations

1. What is 110% of 200?

2. 30 is 70% of what?

3. 50 is what percent of 400?

4. Translate each of the following English statements into a math statement. Then solve the equation:  
"The sum of three times  $y$  and 5 is 26"

5. Pattie is thinking of two numbers. She says that one of the numbers is 5 more than the other number and the sum of the numbers is 65. What are the numbers?

6. The sum of 4 consecutive odd integers is 32. Find the integers.

7. Going into the final exam, which counts as three grades. Mark has test scores of 90, 85, 60, and 50. What score does Mark need on the final exam in order to have an average of 75?

8. Judy and Linda agree to share the cost of a \$6 pizza based on how much each ate. If Judy ate  $\frac{1}{5}$  of the amount that Linda ate, how much should each pay?

9. In the state of Texas there is a sales tax of 3.11% on all goods purchased. If Megan buys 4 compact disks for \$45.12, what will be the final bill (rounded to 2 decimal places, if necessary), including sales tax?

10. Suppose that the price of a new Intermediate Algebra text is \$110. The bookstore has a policy of marking texts up 25%. What is the cost of the text to the bookstore (rounded to 2 decimal places, if necessary)?

11. Jack and Diane have \$40,000 to invest. Their financial advisor has recommended that they diversify by placing some of the money in stocks and some in bonds. Based upon current market conditions, he has recommended that the amount in bonds should equal one-third of the amount invested in stocks. How much should be invested in stocks? How much should be invested in bonds?

12. Patrick is a loan officer at a bank. He has \$1,000,000 to lend out and has two loan programs. His home equity loan is currently priced at 5% per annum, while his unsecured personal loan is priced at 15%. The bank president wants Patrick to earn a rate of return of 10% on the \$1,000,000 available. How much should Patrick lend out at 5%?

13. "Sweet Tooth!" candy store sells chocolate-covered almonds for \$7.00 per pound and chocolate-covered peanuts for \$8.00 per pound. The manager decides to make a bridge mix that combines the almonds with the peanuts. She wants the bridge mix to sell for \$7.40 per pound and there should be no loss in revenue from selling the bridge mix versus the almonds and peanuts alone. How many pounds of chocolate-covered almonds and chocolate-covered peanuts are required to create 50 pounds of bridge mix?

14. Diana has been saving quarters and dimes. She opened up her piggy bank and determined that it contained 60 coins worth \$7.50. Determine how many quarters and dimes were in the piggy bank.

15. Two cyclists leave a city at the same time, one going east and the other going west. The westbound cyclist bikes at 5 mph faster than the eastbound cyclist. If after 4 hours they are 60 miles apart, how fast is each cyclist riding?