

Diagnostic Test

Unit 11 Simple Algebra

Purpose: to help the student and instructor determine what, if any, sections of this unit the student needs to study.

For #1–5, write an expression.

1. A loss of d dollars from a \$500 savings account.
2. An increase of 29 above w .
3. 38 divided by x .
4. A discount of \$50 from a usual price of x dollars.
5. k dollars divided into 15 shares.
6. I scored x points in the game. My brother scored 2.25 times more. Write an expression for how many points my brother scored.
7. In problem 6 above, how much did my brother score if I scored 8 points?
8. At a birthday party there were a total of 14 children. Write an expression for how many cookies each child would get if there were c cookies and each child got the same number.
9. Going to a movie costs \$8.75 for the ticket and \$4 for a box of popcorn. Write an expression for how much it would cost to buy one ticket and p boxes of popcorn.
10. In problem 9 above, how much does it cost to go to the movie and buy 3 boxes of popcorn?
11. Write an expression for how many months it would take to save \$1,000 if you saved y dollars each month.

Solve each equation below and check your answer. Even if you can solve an equation in your head, write down the algebra steps you would do to get the solution. In these problems, we are checking on your ability to apply algebra.

12. $9 = p - 7$

13. $102 = 7r$

14. $\frac{t}{0.31} = 7.08$

15. $41.7 = 73.2x$

16. $\frac{n}{5} = -9$

17. $-6 = r + 17$

Solve the problems below by writing an equation and solving it. To have a correct answer, you must have a correct equation and the correct solution.

18. A runner ran 8 miles one day and 13 miles the next day. If he ran a total of 31 miles in 3 days, how many miles did he run on the third day?

19. A motorcycle weighs 173.25 kilograms. That is 18.3 times more than my bicycle. How much does my bicycle weigh?

20. A dance started at 8 PM. Between 8 PM and 9 PM, 29 more people arrived at the dance and no one left. At 9 PM, there were 208 people at the dance. How many people were there at 8 PM?

21. Thirteen people discovered a buried treasure and divided it up equally. They each got \$16,207.43. How much money did they discover?

22. A store owner bought 17,500 plastic pens. She needs to collect \$6,785 when these pens are sold in order to make the profit she needs. How much should she charge for each pen?