

ALGEBRA I
PROBLEM SOLVING REVIEW

NAME _____
DATE _____ PERIOD _____

Use the appropriate formula to solve each problem. Show all work on your own paper.

1. A rectangular picture frame has a perimeter of 3 ft. The width of the frame is 3 times its height. Find the height of the frame. $P = 2L + 2W$
2. Newton's second law of motion states that force, F , is equal to the mass, m , times acceleration, a , or $F = ma$. A force of 20 newtons is acting on a mass of 10 kilograms. A newton is one kilogram-meter per second. What is the acceleration.
3. You deposit \$400 in a savings account. After one year, your balance is \$428. What was your annual interest rate? $A = P + Prt$
4. A rectangle is 1.5 times as long as it is wide. The perimeter of the rectangle is 75 inches. Find the width of the rectangle.
5. The upward velocity of the water in a water fountain is given by the formula $v = -32t + 28$, where t is the number of seconds after the water leaves the fountain. While going upward, the water slows down until, at the top of the stream, the water has a velocity of zero. How long does it take each particle of water to reach the maximum height?

Translate each expression into an equation or inequality and solve.

6. Eight more than a number is twenty-six. Find the number.
7. The product of a number and six is seventy-two. Find the number.
8. The quotient of a number and five decreased by nine is six. Find the number.
9. Three times the sum of a number and four is twelve. Find the number.
10. A number increased by two is greater than sixteen.
11. One-half a number is at least twenty.

Solve for the indicated variable.

12. $4x - 3y = 2$, for y

13. $A = \frac{1}{2}bh$, for b

14. $A = lw$, for w

15. $C = 2\pi r$, for r

16. $P = 2l + 2W$, for w

17. $d = rt$, for t

Write a verbal model, translate using labels, and then solve each word problem. Show all work on your own paper.

18. The members of the school band are selling wrapping paper to raise money to attend a band competition. For each order of wrapping paper, the band makes \$1. The fifty band members need a total of \$550 to take the trip. Each band member will pay \$3 toward the cost. How many orders of wrapping paper must the band members sell to meet their goal?
19. A book that you have been wanting to buy has just been reduced to 65% of its original price. The sales tax is 7%. You pay the cashier \$25 and receive \$3.13 in change. find the original price of the book.
20. Two runners left the starting line at the same time. The first runner crossed the finish line in 30 minutes and averaged 12 kilometers per hour. The second crossed the finish line 5 minutes later. Find the speed of the second runner.
21. You start a trip at 8:00 a.m. and the car's odometer reading is 65,660.1. At 4:00 p.m., when you reach your destination, the odometer reading is 66,035.8. What was your average speed?
23. The sum of three consecutive integers is eighty-one. Find all three integers.
24. Two runners are running a 21 kilometer course. The first runs at 12 kilometers per hour, and the second runs at 16 kilometers per hour. If the first runner gets a 9 kilometer head start, how far does each run before they are side by side?