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Math_Questions_0006

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1. The formula

$$B = 50a$$

is used in New England to estimate the minimum furnace output B , in Btu's, for an old, poorly insulated house with a square feet of flooring.
   a) Determine the minimum furnace output for a 3200-ft² old, poorly insulated house.

   b) Solve the equation for a .
Solution:

2. The surface area A of a cube with side s is given by $A = 6s^2$.
   a) Find the surface area of a cube with side of 3 inches.

   b) Solve the equation $A = 6s^2$ for s^2 .
Solution:

Note, we usually would say s = ± √(A/6) but with length, we only consider the positive solution.

3. When all n teams in the league play every other team twice, a total of N games are played, where $N = n^2 - n$. A basketball league has 11 teams and all teams play each other twice. How many games are played?
Solution:

Solve for the indicated letter.

4. a) $d = 55t$, for t

ANS:

b) $y = x - \dfrac{2}{3}$, for x

ANS:

5. a) $y = q - x$, for x

ANS:

b) $10y = -5x$, for y

ANS:

6. a) $y = bx - c$, for x

ANS:

b) $S = rx + s$, for x

ANS:

7. a) Area of a triangle $A = \dfrac{1}{2}bh$, for b

ANS:

b) $Ax + By = C$, for y

ANS:

8. a) $P = 4m + 7mn$, for m

ANS:

b) $D = \dfrac{1}{E + F}$, for F

ANS:

9. $K = 19.18w + 7h - 9.52a + 92.4$, for a

ANS:

Solve each of the problems.

10. a) What percent of 76 is 19?

ANS:

b) 20.4 is 24% of what number?

ANS:

11. a) 7 is 175% of what number?

ANS:

b) What percent of 150 is 39?

ANS:

12. a) 24 is 24% of what number?

ANS:

b) What is 40% of 2?

ANS:

13. a) 25 is what percent of 80?

ANS:

b) 8 is 2% of what number?

ANS:

14. In 1997, 15.2 million cars were sold in the United States. Of these, 10.8 million were manufactured in the United States, 3.7 million in Asia, and 0.7 million in Europe. What percent were manufactured in each region?
ANS: United States ……, Asia ……, Europe …..

15. Selena left a $12.76 tip for a meal that cost $58.
   a) What percent of the cost of the meal was the tip?
     ANS:

   b) What was the total cost of the meal including the tip?
     ANS:

16. In a medical study of a group of pregnant women with "good-to-excellent" diet, 285 of the women, or 95%, has babies who were in good or excellent health. How many women were in the original study?
ANS:

17. It has been determined that at the age of 10, a girl has reached 84.4% of her final adult height. Dana is 4feet 8 inches at the age of 10. What will her final adult height be?
ANS:

For problems 18-24, solve each of the problems using the five-step problem-solving strategy. (Even though you might find the answer quickly in some other way)

18. A72 inches board is cut into two pieces. One piece is 2inches longer than the other. Find the lengths of the pieces.
Solution:

19. The height of the Eiffel Tower is 974 feet, which is about 669 feet higher than the Statue of Liberty. What is the height of the Statue of the Liberty?
Solution:

20. In recent years, Americans spent a total of $35 billion to remodel bathrooms and kitchens. Twice as much was spent on kitchens as bathrooms. How much was spent on each?
Solution:

21. The perimeter of a cross section of a "two-by-four" piece of lumber is $10\frac{1}{2}$ in. The length is twice the width. Find the actual dimensions of the cross section of a two-by-four.
Solution:

22. A rancher needs to form a triangular horse pen using ropes next to a stable. The second angle is three times the first angle. The third angle is $15°$ less than the first angle. Find the angles of the triangular pen.
Solution:

23. Sharon invested money in a savings account at a rate of 6% simple interest. After 1 year, she has $6996 in the account. How much did Sharon original invest?
Solution:

24. In Cranston, taxis charge $4 plus $90\mathcal{C}$ per mile for an airport pickup. How far from the airport can Ralph travel for $17.50?
Solution:

25. Write a problem for a classmate to solve so that it can be translated to the equation
$$\frac{2}{3}x + (x+5) + x = 375$$

ANS: