

1. A company that manufactures radios first pays a start-up cost, and then spends a certain amount of money to manufacture each radio. If the cost of manufacturing r radios is given by the function $c(r) = 5.25r + 125$, what is the cost of each radio manufactured?

$$\$5.25$$

2. The owner of a small computer repair business has one employee, who is paid an hourly rate of \$22. The owner estimates his weekly profit using the function $P(x) = 8600 - 22x$. What does x represent?

of hours worked

3. The cost of airing a commercial on television is modeled by the function $C(n) = 110n + 900$, where n is the number of times the commercial is aired.

a) Based on this model, how much does it cost to air the commercial 20 times?

$$C(20) = 110(20) + 900$$

$$C(20) = \$3100$$

b) If the company's budget is \$5,500, what is the maximum number of times the commercial can be aired?

$$\begin{array}{r} 110n + 900 \leq 5500 \\ -900 \quad -900 \\ \hline 110n \leq 4600 \end{array}$$

$$\frac{110n}{110} \leq \frac{4600}{110}$$

$$n \leq 41.81$$

41 times
it can be
aired

4. A satellite television company charges a one-time installation fee and a monthly service charge. The total cost is modeled by the function $y = 40 + 90x$. What is the installation fee and the monthly service charge?

→ \$90

↓
\$40

5. The cost of belonging to a gym can be modeled by $C(m) = 50m + 79.50$, where $C(m)$ is the total cost for m months of membership.

a) How much would it cost for a 2-year gym membership? → 2 yr = 24 months

$$C(24) = 50(24) + 79.50$$

$$C(24) = \$1279.50$$

b) If a person only wanted to spend \$1,000 on a gym membership, how long will this particular membership last?

$$\begin{array}{r} 50m + 79.50 \leq 1000 \\ -79.50 \quad -79.50 \\ \hline 50m \leq 920.5 \\ \hline m \leq 18.41 \end{array}$$

$$m \leq 18.41$$

18 months

6. Tim ate four more cookies than Alice. Bob ate twice as many cookies as Tim. If x represents the number of cookies Alice ate, write an expression that represents the number of cookies Bob ate.

$$\text{Tim} = x + 4$$

$$\text{Alice} = x$$

$$\text{Bob} = 2(x + 4)$$

Bob = 2(x + 4)

7. Marcy determined that her father's age is four less than three times her age. If x represents Marcy's age, which expression represents her father's age?

$$\text{Marcy} = x$$

$$\text{Dad} = 3x - 4$$

3x - 4

8. What is the perimeter of a regular pentagon with a side whose length is $x + 4$?

$$5(x + 4) \quad \leftarrow \text{5 sides}$$

5x + 20

9. The length of a rectangular room is 7 less than three times the width, w , of the room. Which expression represents the area of the room?



$$w(3w - 7)$$

3w² - 7w