

Special Equation Types Remediation

Name: Key

Directions: For each scenario, define a variable, create an expression, and then answer the following questions:

1. Admission for groups of students to Ocean World is \$330 for the first twenty students. Each student after that must pay \$11.50.

Variable: X: # of students Expression: $330 + 11.50(x - 20)$

a. If 45 students go to Ocean World, what will the total cost be? 20 students

$$\begin{aligned}
 & \overset{x}{45} \\
 & 330 + 11.50(45 - 20) = \text{total cost} \\
 & 330 + 11.50(25) \\
 & 330 + 287.50 \\
 & \boxed{\$617.50 \text{ total cost}}
 \end{aligned}$$

b. If the total cost was \$445, how many students attended the trip?

$$\begin{aligned}
 & \text{total} \quad x \\
 & 330 + 11.50(x - 20) = 445 \\
 & \begin{array}{r} 330 \\ -330 \end{array} \quad \begin{array}{r} \\ -330 \end{array} \\
 & \hline
 & 11.50(x - 20) = 115 \\
 & \begin{array}{r} 11.50 \\ 11.50 \end{array} \quad \begin{array}{r} \\ 11.50 \end{array} \\
 & \hline
 & x - 20 = 10 \\
 & \begin{array}{r} +20 \\ +20 \end{array} \\
 & \boxed{x = 30 \text{ students}}
 \end{aligned}$$

James is going to join a gym which charges him \$89 for the first four months and then \$26 for each additional month after that.

Variable: X: # of months Expression: $89 + 26(x - 4)$

a. If James pays \$401, how many months has James been attending the gym?

$$\begin{aligned}
 & \text{total cost} \quad x \\
 & 89 + 26(x - 4) = 401 \\
 & \begin{array}{r} 89 \\ -89 \end{array} \quad \begin{array}{r} \\ -89 \end{array} \\
 & \hline
 & 26(x - 4) = 312 \\
 & \begin{array}{r} 26 \\ 26 \end{array} \quad \begin{array}{r} \\ 26 \end{array} \\
 & \hline
 & x - 4 = 12 \\
 & \begin{array}{r} +4 \\ +4 \end{array} \\
 & \boxed{x = 16 \text{ months}}
 \end{aligned}$$

b. If James keeps his membership for 2 years, how much will he pay? 24 months

$$\begin{aligned}
 & x \quad \text{total} \\
 & 89 + 26(24 - 4) = \text{total cost} \\
 & 89 + 26(20) \\
 & 89 + 520 \\
 & \boxed{\$609 \text{ total cost}}
 \end{aligned}$$