

Topic 1.2 – Solving a Linear Equation

Model & Discuss

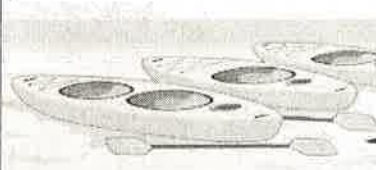
Joshua is going kayaking with a group during one of his vacation days. In his vacation planning, he budgeted \$50 for a kayak rental.

A. How can Joshua determine the number of hours he can rent a kayak for himself? Describe two different options.

B. Joshua found out that there is a \$25 nonrefundable equipment fee in addition to the hourly rates. How does this requirement change the mathematics of the situation?

C. How do the processes you used for parts A and B differ? How are they the same?

KAYAK RENTALS



Rental Rates	
	Per hour
single kayak	\$15
single sea kayak	\$18
double kayak	\$25

Warm-up

When Solving for a variable PEMDAS

EXAMPLE 1 Solve Linear Equations

What is the value of x in the equation $\frac{2(x+4)}{3} - 8 = 32$?

$$\begin{aligned}
 \frac{2(x+4)}{3} - 8 &= 32 \\
 \frac{2(x+4)}{3} &= 40 \quad +8 \quad +8 \\
 2(x+4) &= 120 \quad \cdot 3 \\
 2x + 8 &= 120 \\
 2x &= 112 \quad -8 \quad -8 \\
 x &= 56 \quad \cdot \frac{1}{2} \quad \cdot \frac{1}{2}
 \end{aligned}$$

Try it:

$$\begin{aligned}
 4 + \frac{3x-1}{2} &= 9 \\
 -4 & \quad -4 \\
 \frac{3x-1}{2} &= 5 \quad \cdot 2 \\
 3x - 1 &= 10 \\
 +1 & \quad +1 \\
 \frac{3x}{3} &= \frac{11}{3} \\
 x &= \frac{11}{3}
 \end{aligned}$$

EXAMPLE 2 Solve Consecutive Integer Problems

The sum of three consecutive integers is 132. What are the three integers?

$$\begin{aligned}
 x + (x+1) + (x+2) &= 132 \\
 3x + 3 &= 132 \\
 -3 & \quad -3 \\
 3x &= 129 \\
 \frac{3x}{3} &= \frac{129}{3} \\
 x &= 43
 \end{aligned}$$

Try... Sum of three consecutive even integers is 144, what are they?

43, 44, 45