

Section Overview



Algebra with Rational Numbers

Lesson 2-7

Why? Most real-world applications involve rational numbers.

Solving Equations with Rational Numbers

$$\begin{aligned} x - \frac{1}{3} &= \frac{1}{2} \\ + \frac{1}{3} &= + \frac{1}{3} \\ \hline x &= \frac{1}{2} + \frac{1}{3} \\ x &= \frac{3}{6} + \frac{2}{6} \\ x &= \frac{5}{6} \end{aligned}$$

$$\begin{aligned} 1.25m &= 40 \\ \frac{1.25m}{1.25} &= \frac{40}{1.25} \\ m &= 32 \end{aligned}$$

$$\begin{aligned} \frac{2}{3}x &= -\frac{1}{6} \\ \frac{2}{3}x \cdot \frac{3}{2} &= -\frac{1}{6} \cdot \frac{3}{2} \\ x &= -\frac{3}{12} \\ x &= -\frac{1}{4} \end{aligned}$$

Two-Step Equations

Lesson 2-8

Why? You can solve some problems by using two-step equations.

Jill's auto repair bill was \$225.
The parts cost \$95 and the labor cost \$52 per hour.
For how many hours of labor was Jill charged?

Solve

total bill = **parts** + **labor**

$$\begin{aligned} 225 &= 95 + 52h \\ -95 &-95 \\ \hline 130 &= 52h \\ 130 &= 52h \\ \hline 52 &52 \\ 2.5 &= h \end{aligned}$$

Check

$$\begin{aligned} 225 &\stackrel{?}{=} 95 + 52h \\ 225 &\stackrel{?}{=} 95 + 52(2.5) \\ 225 &\stackrel{?}{=} 95 + 130 \\ 225 &\stackrel{?}{=} 225 \checkmark \end{aligned}$$

Jill was charged for 2.5 hours of labor.