

Solving Pan-Balance Equations

- ① Build an equation with two operations that is equivalent to the equation $k = 19$. Record the operations that you use to create each equation below. **Answers vary.**

Original equation:

Operation (in words)

$$\begin{array}{r} k = \underline{\hspace{2cm}} \\ \\ = \underline{\hspace{2cm}} \\ \\ = \underline{\hspace{2cm}} \end{array}$$

- ② Check that 19 is a solution to your equations.
- ③ Find the mistake in the work below.

Original pan-balance equation:

Operation (in words)

Subtract 10.

Divide by 2.

$$\begin{array}{r} \underbrace{2x + 10}_{\triangle} = \underbrace{28} \\ \\ \underbrace{2x}_{\triangle} = \underbrace{38} \\ \\ \underbrace{x}_{\triangle} = \underbrace{19} \end{array}$$

Describe the mistake and how to correct it. **Sample answer:**

Ten was subtracted from one side and added to the other side. Ten has to be subtracted from both sides.

- ④ Record the operations you use to create equivalent equations and solve the equation.

Original equation:

Operation (in words)

Sample answers given.

Add 7.

Divide by 3.

$$\begin{array}{r} \underbrace{3m - 7}_{\triangle} = \underbrace{80} \\ \\ \underbrace{3m}_{\triangle} = \underbrace{87} \\ \\ \underbrace{m}_{\triangle} = \underbrace{29} \end{array}$$