Unit 4 Lesson 7: All, Some, or No Solutions

1 Which One Doesn't Belong: Equations (Warm up)

Student Task Statement

Which one doesn't belong?

1. $5 + 7 = 7 + 5$

2. $5 \cdot 7 = 7 \cdot 5$

3. $2 = 7 - 5$

4. $5 - 7 = 7 - 5$

2 Thinking About Solutions

Student Task Statement

$n = n$

$2t + 6 = 2(t + 3)$

$3(n + 1) = 3n + 1$

$\dfrac{1}{4}(20d + 4) = 5d$

$5 - 9 + 3x = \text{-}10 + 6 + 3x$

$\dfrac{1}{2} + x = \dfrac{1}{3} + x$

$y \cdot \text{-}6 \cdot \text{-}3 = 2 \cdot y \cdot 9$

$v + 2 = v - 2$

1. Sort these equations into the two types: true for all values and true for no values.

2. Write the other side of this equation so that this equation is true for all values of u.
   $6(u - 2) + 2 =$

3. Write the other side of this equation so that this equation is true for no values of u.
   $6(u - 2) + 2 =$

3 What's the Equation?

Student Task Statement

1. Complete each equation so that it is true for all values of x.

   a. $3x + 6 = 3(x + \underline{})$

   b. $x - 2 = \text{-}(\underline{} - x)$

   c. $\frac{15x - 10}{5} = \underline{} - 2$

2. Complete each equation so that it is true for no values of x.

   a. $3x + 6 = 3(x + \underline{})$

   b. $x - 2 = \text{-}(\underline{} - x)$

   c. $\frac{15x - 10}{5} = \underline{} - 2$

3. Describe how you know whether an equation will be true for all values of x or true for no values of x.