SWBAT factor linear expressions including fractions.

Do Now:

1) A new miniature golf opened up in town. A discount package is available to purchase. It includes 3 round of golf and three dollars off.

   a) Write an expression that represents the total cost of the discount package.
      Identify the variable: \( g \) = the amount one round of golf costs
      \[
      3g - 3
      \]

   b) Write an expression that would represent the total cost if six friends bought the discount package.
      \[
      6(3g - 3) = 18g - 18
      \]

2) Xander goes to the movies with his family. Each family member buys a ticket and two boxes of popcorn.

   a) Write an expression that represents the amount of money each member of the family spends.
      Let \( t \) = price of tickets
      Let \( p \) = price of popcorn
      \[
      t + 2p
      \]

   b) Write an expression that would represent the total amount the family spent if there are five family members.
      \[
      5(t + 2p) = 5t + 10p
      \]
Justin went to the carnival in Dublin Ireland where he bought the shirt he is wearing today. He spent $20 to get in and $2 on each ride. Write an expression that represents the total amount of money he spent. Let \( y \) = \# of rides he went on

\[ 20 + 2y \]
Today we are going to practice factoring expressions with fractions. Let’s see what you remember about distributing with fractions first...

Write each expression in standard form.

1) \( \frac{1}{2}(18x-6) \)
2) \( \frac{2}{5}\left(\frac{1}{3}x+\frac{3}{2}\right) \)

3) \( \frac{1}{4}(16-4x) \)
4) \( \frac{3}{9}-\frac{1}{5}x \)

Now let’s work backwards. Write each expression as the product of two factors.

5) \( 4x-16= \) \( 4(x - 4) \)
6) \( \frac{4}{5}x+\frac{4}{5}= \) \( \frac{4}{5}(x + 1) \)

7) \( \frac{1}{6}x-1= \) \( \frac{1}{6}(1r - 6) \)
8) \( \frac{1}{2}x-\frac{3}{2}= \)

\( \frac{1}{6}\div\frac{1}{6}=1 \)

\( -16\div4=-4 \)

\( \frac{4}{5}\div\frac{4}{5}=1 \)

\( \frac{8}{4}\times\frac{8}{4}=1 \)

\( \frac{1}{6}\times\frac{6}{1}=6 \)
9) \( \frac{1}{2} x + 1 = \frac{1}{2} (x + 2) \)

10) \( \frac{1}{3} y + 3 = \frac{1}{3} (y + 9) \)

11) \( 4z - \frac{1}{4} = 4 \left( z - \frac{1}{16} \right) \)

12) \( 7c - \frac{1}{7} = 7 \left( c - \frac{1}{49} \right) \)
SWBAT factor linear expressions including fractions.

Write each of the following problems in standard form.

1. \( \frac{3}{4}(5x - 1) \)  
2. \( \frac{1}{8}(2x + 4) \)  
3. \( \frac{1}{5}(10x - 5) - 3 \)

Write each of the following as the product of two factors.

4. \( \frac{1}{2}y - \frac{1}{2} \)  
5. \( \frac{1}{4}x + 4 \)  
6. \( \frac{1}{5}x - \frac{1}{25} \)

7. Building on the Essential Question Explain why 
   \( 2(x - 1) + 3(x - 1) = 5(x - 1) \) is a true statement. 
   Justify your answer using properties.