SWBAT factor linear expressions.

1) Factor $48j + 60k + 24$ by finding the greatest common factor of the terms.

$$12(4j + 5k + 2)$$

2) Simplify: $(x + 5) + (x + 5) + (x + 5)$

$$3x + 15$$

Answer: $3x + 15$ Now, factor your answer: $3(x + 5)$

3) Simplify: $2x + (5 + x) + 5 \cdot 2$

$$3x + 15$$

Answer: $3x + 15$ Now, factor your answer: $3(x + 5)$

4) Simplify: $2x + (y + x) + 2y$

$$3x + 3y$$

Answer: $3x + 3y$ Now, factor your answer: $3(x + y)$
AIM: How do we write expressions from word problems?

Do Now: You are making care packages for troops that are living abroad. They always request candy, a special food and something to write with. Look at the supplies given to you.

a) Take an inventory of what is in your envelope and write it down.

20 Ham  8 Starburst  
12 Pencils

b) Make the most amount of fair care packages can you make that each contains the same amount of each item? (You must use everything in the envelope)

c) What does each care package contain?

5 Ham  3 pencils  2 Starburst

d) Let x = $ for each Starburst, y = $ for each Ham, z = $ for each pencils. Write an expression for the total cost of the items that make the care packages.

8x + 20y + 12z

d) Write an expression for the cost of one care package.

2x + 5y + 3z

e) If you add all the care packages, does is the total equivalent to the total cost of the items? How do you know?
Writing Expressions:

1 - Identify the variable or variables
2 - Identify the number that associates with the variable and what operation (+,-,x,÷) connects the variable to the number.
3 - Write an expression that represents the data.

Write an expression that represents each situation and factor the expression to answer the question.

1) Peter and Nancy went to a carnival. Together it cost $8 to get in and $2 per ride. Write an expression that represents the total amount to money they would spend together.
Define a variable: Let ___ = number of rides
What number does that variable associated with in the problem?
Write the expression
\[ 2r + 8 \]
Factor the expression to find out how much each paid.

2) Paul bought shirts that cost $10 each and pants that cost $20, write an expression that represent the total amount of money he spent.
Define a variable: Let ___ = amount of shirts
Let ___ = pants
What number does that variable associated with in the problem?
Write the expression
\[ 10s + 20p \]
Factor the expression.
\[ 10(s + 2p) \]
3) Chloe's cell phone plan cost $96 plus an extra $24 per gigabyte of data every year. Write an expression to find the total cost depending on the amount of gigabytes she chooses to use every year.

\[
\text{Cost} = 96 + 24 \times g
\]

Let \( g \) = gigabyte

Factor the expression to find the amount that you paid every month.

4) Sally won 40 bouncy balls at the Dave and Buster’s. She gave two to each of her friends. Write an expression that represents how many bouncy balls she has remaining.

\[
\text{Remaining balls} = 40 - 2f
\]

Factor your answer.