SM2 Lesson 2-8 (Common Factors, Multiplying Binomials)

$2x$ Factors: ___ , ____ .

$2(x+3)$ Factors: ___ , _____ .
   Why is (x + 3) a factor? (it looks like a sum)

Because it is an _____ that is being multiplied by _____ .

$$2 * (x + 3)$$

To Factor (verb) to break a number or an expression into
_____ that are multiplied together.
      10 → 2*5

The expression 2x + 6 has the _____ '2' in both terms
   We can see this if we factor each term individually:

2x + 6 → (_____) + (_____)

"Factoring out" a common Factor from an expression
means to rewrite the expression as the *common factor*
multiplied by the expression.

2x + 6 → _____

   2(x + 3)   =   2x + 6

Factoring out the common factor: the "_____" of the
_____ property.

Identify the factors in each expression.

$5x(3x+1)(2x-5)$ → ___ , _____ , _____ , _____

$x^2(x-2)(x+3)$ → ___ , _____ , _____ , _____

Factors can be an expression made up of terms being added.

Sometimes the common factor is an integer

$3x - 12$
(__ * __) − (__ * __)
$3(x - 4)$

$$-4x^2 + 8x + 12$$
(__ * __ * __) + (__ * __ * __) + (__ * __)
$$-4(x^2 - 2x - 3)$$

Sometimes the common factor is a variable

$$x^2 + x \qquad\qquad x^3 + x^2 + x$$
$$(x * x) + (1 * x) \qquad (x * x^2) + (x * x) + x * 1$$

"x" is a common factor both terms

_____(___ + ___)   __(___ + ___ + ___)

Sometimes the common factors
are both an **integer** and a **variable.**

$$4x^2 - 16x$$
$$(4 * x * x) - (4 * 4 * x)$$
$$4x(x - 4)$$

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Factor the following expressions

$-50b + 90$

$-10 + 20n^3$

$-60x^5 - 100x^4 - 30x^2$

$-81r - 63r^3 - 63r^4$

$-24x^4 + 40x^3 - 80x^2 + 16x$

$-40x^6 + 20x^2 + 4x + 8$

Multiplying Binomials $(x - 3)(x + 4)$ [   ]

The "Box Method"

	x	4
x		
-3		

Standard Form
Quadratic Expression

$(x - 1)(x + 5)$ $(x + 2)(x + 6)$ $(x - 4)(x + 4)$

[   ]   [   ]   ___ + ___x − ___

[   ]

Multiplying Binomials $(x - 4)(2x - 3)$

The "Box Method"

	x	-4
2x		
-3		

$(4x - 2)(x + 1)$ $(6x - 2)(x - 4)$ $(x - 5)(x + 5)$