Factoring Quadratics Review:

Factor: $x^2 + 7x + 10$

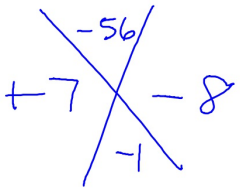
When the leading coefficient is 1 you can skip the box and use the "X" to create your factors.

	X	2
X	x^2	2x
5	5x	10

$(x+2)(x+5)$

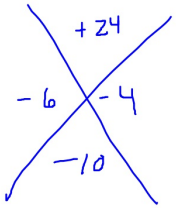
Factor:

$x^2 - x - 56 = (x+7)(x-8)$



Factor:

$x^2 - 10x + 24 = (x-6)(x-4)$



Sec 7-6: Function Operations

Definition	Function Operations
Addition	$(f+g)(x) = f(x) + g(x)$
Multiplication	$(f \cdot g)(x) = f(x) \cdot g(x)$
Subtraction	$(f-g)(x) = f(x) - g(x)$
Division	$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}, g(x) \neq 0$

Notes

Use these three functions:

$f(x) = 2x^2 - 5x$ $g(x) = 3x$ $h(x) = x^2 + 10$

Perform each function operation. Simplify as much as possible.
Find the domain of the resulting function.

1. $(g - f)(x) = g(x) - f(x) = 3x - (2x^2 - 5x)$

$= 3x - 2x^2 + 5x = -2x^2 + 8x$

D: $\mathbb{R}$

Use these three functions:

$f(x) = 2x^2 - 5x$ $g(x) = 3x$ $h(x) = x^2 + 10$

Perform each function operation. Simplify as much as possible.
Find the domain of the resulting function.

2. $(f + h)(x) = (2x^2 - 5x) + (x^2 + 10)$

$= 3x^2 - 5x + 10$

D: $\mathbb{R}$

Use these three functions:

$f(x) = 2x^2 - 5x$ $g(x) = 3x$ $h(x) = x^2 + 10$

Perform each function operation. Simplify as much as possible.
Find the domain of the resulting function.

3. $(f \cdot h)(x)$

$= (2x^2 - 5x)(x^2 + 10)$

$\times$	$2x^2$	$-5x$
x^2	$2x^4$	$-5x^3$
$+10$	$+20x^2$	$-50x$

$= 2x^4 - 5x^3 + 20x^2 - 50x$

D: $\mathbb{R}$

Use these three functions:

$f(x) = 2x^2 - 5x$ $g(x) = 3x$ $h(x) = x^2 + 10$

Perform each function operation. Simplify as much as possible.
Find the domain of the resulting function.

4. $\left(\frac{h}{g}\right)(x) = \frac{x^2 + 10}{3x}$ D: $x \neq 0$

Use these three functions:

$f(x) = 2x^2 - 5x$ $g(x) = 3x$ $h(x) = x^2 + 10$

Perform each function operation. Simplify as much as possible.
Find the domain of the resulting function.

5. $\left(\frac{f}{g}\right)(x) = \frac{2x^2-5x}{3x} = \frac{2x-5}{3}$, D: $x \neq 0$

given $5x + 4y = Q$ and $y = 2x - 3$

Use substitution to write an equation for Q in terms of x. Simplify the resulting equation.

$Q = 5x + 4(2x - 3)$

$= 5x + 8x - 12$

$Q = 13x - 12$