Bell Ringer - Solve the equation by factoring.

$$x^2 = 15x - 44$$

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$$x^{2} = 15x - 44$$
 $x^{2} - 15x + 44 = 0$
 $(x - 11)(x - 4) = 0$
 $X = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix}$
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Factoring $ax^2 + bx + c$ when a > 1

Box Method - Factoring the GCF

- Look to factor out a GCF from all terms whenever possible.
- Multiply "a" and "c" terms and find the factors that sum to the "b" term (exact same process as equations where a=1)
- 3) Create a "2x2 Box"
 - "a" term is in the upper left
 - "b" factors are in the upper right and lower left
 - "c" term is in the lower right
- 4) Factor out the GCF from each column and row; place the number/variable on the outside of the box using the +/- sign closest to the outside edge of the box
- 5) The numbers on the outside of the box is the factoring (parentheses)

Solve the equation by factoring $4x^2 + 12x - 27 = 0$.



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$$ac = 4(-27) = -108$$

$$(2x-3)(2x+9)=0$$

 $x=\frac{3}{2}$ and $-\frac{9}{2}$

Solve the equation by factoring $8x^2 - 22x + 5 = 0$.



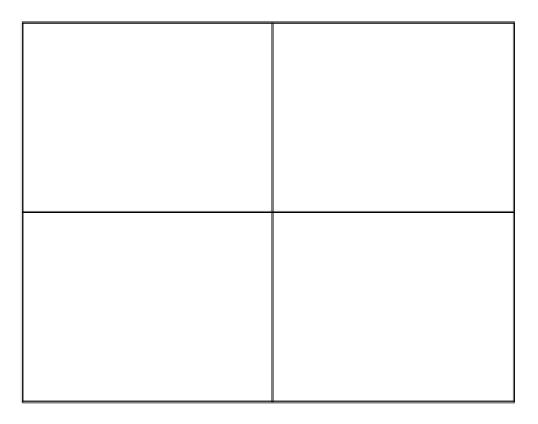
Solve the equation by factoring $8x^2 - 22x + 5 = 0$.

$$ac = 8(5) = 40$$

$$(2x-5)(4x-1)=0$$

 $x=\frac{5}{2}$ and $\frac{1}{4}$

Solve the equation by factoring $6x^2 - 36x = -54$.



Solve the equation by factoring $6x^2 - 36x = -54$.

Factor out
$$6$$

 $6(x^2 - 6x + 9)$

Don't need the Dox because a=1

$$6(x-3)(x-3)=0$$

A cliff diver jumps from a ledge 96 feet above the ocean with an initial upward velocity of 16 feet per second. How long will it take until the diver enters the water? Solve using factoring.

A cliff diver jumps from a ledge 96 feet above the ocean with an initial upward velocity of 16 feet per second. How long will it take until the diver enters the water?

Solve using factoring.

$$N = -16t^{2} + vt + s$$

$$0 = -16t^{3} + 16t + 96$$
Factor out
$$0 = -16(t^{2} - 1t - 6)$$

$$0 = -16(t - 3)(t + 2)$$

$$t = 3 \text{ and } -2 \text{ but only } 3 \text{ works}$$

The diver will reach the water in 3 seconds.