Zero Product Property Activity

For equations with both x^2 and x in them, we have several choices in how to solve them. The first way is by using the zero product property. We need to do this because we can't isolate x or x^2. Look at the example below and solve the rest on your own. If these do not look familiar, come and get a lesson.

$$x^2 + 2x - 8 = 0$$
$$\Rightarrow (x-4)(x+2) = 0$$
$$\Rightarrow x - 4 = 0 \ldots\ldots x + 2 = 0$$
$$\Rightarrow x = 4 \ldots\ldots x = -2$$

1) $x^2 + 5x + 6 = 0$

2) $x^2 - 10x + 21 = 0$

3) $x^2 - 2x - 15 = 0$

4) $x^2 + 3x = 40$

5) $x^2 + 7x = 0$

6) $2x^2 + 7x + 3 = 0$

7) $8x^2 - 14x = -3$

8) $10x^2 = 11x + 6$

9) $x^2 + 6x + 9 = 0$

10) $x^2 + 7x + 6 = 0$

11) $x^2 - 10x = -25$

12) $4x^2 - 9 = 0$

13) $x^2 = 12x - 32$

14) $15 = 2x^2 - 7x$

15) $x^3 + 16x^2 + 55x = 0$

Zero Product Property Activity

For the following, the solutions to the quadratic are given. Write a quadratic equation that has these as solutions, and write the answer in standard form.

1) $x = 3, x = -4$

2) $x = 5, x = -7$

3) $x = 4$

4) $x = \pm 6$

5) $x = 3 \pm \sqrt{2}$

6) ***no solution***

Sometimes quadratic equations do not factor. In this case, we need another method. For the examples below, factor the ones where it is possible.

1) $x^2 - 9x + 14 = 0$

2) $x^2 + 5x + 4 = 0$

3) $x^2 + 5x - 4 = 0$

4) $2x^3 - 2x^2 = 60x$

5) $3x^2 - 14x + 9 = 0$

6) $12x^2 + 11x - 5 = 0$