Warm-Up:
1) Find the GCF for the following terms.
$28r^3t^2$, $35r^2t^4$, $70r^2t^2$

Section 8-2: Factoring Using the Distributive Property

The first step in factoring any polynomial is using the Distributive Property and take out the GCF of all the terms.

Examples:
Use the Distributive Property to factor each polynomial.

1) $15x + 25x^2$

$5x(3+5x)$

2) $12xy + 24xy^2 - 30x^2y^4$

$6xy(2+4y-5xy^3)$

Factor.

3) $q^4 - 18q^3 + 22q$

$q(q^3-18q^2+22)$

4) $6y - 12x + 8z$

$2(3y-6x+4z)$

5) $4a^2b + 28ab^2 + 7ab$

$ab(4a+28b+7)$

A polynomial with four terms can sometimes be factored using the Distributive Property three times. This is called factoring by grouping.

To factor by grouping:
1) Factor out the GCF of the first two terms.
2) Factor out the GCF of the second two terms.
3) Factor out the common binomial in the parenthesis.

Examples:
Factor.

6) $2xy + 7x - 2y - 7$

$x(2y + 7) - 1(2y + 7)$

$(2y + 7)(x - 1)$

7) $15a - 3ab + 4b - 20$

$3a(5 - b) + -4(-b + 5)$

$3a(5 - b) - 4(5 - b)$

$(5 - b)(3a - 4)$

Examples:
Factor.
8) $6y^2 - 4y + 3y - 2$

$2y(3y-2)+1(3y-2)$

$(3y-2)(2y+1)$

(a)(b) = 0

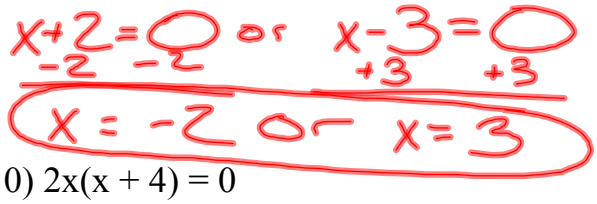
What must *a* or *b* equal?

$a=0$ or $b=0$

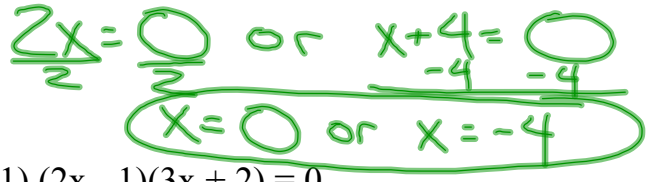
Zero Product Property:
If the product of two numbers is zero, then one of the numbers must also be zero.

Examples:
Solve for the variable.

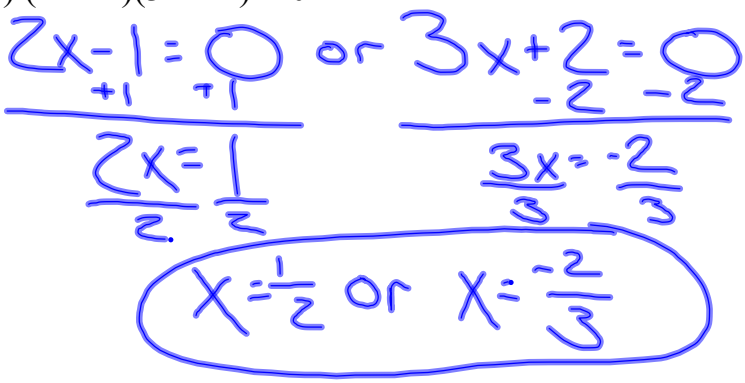
9) $(x + 2)(x - 3) = 0$



10) $2x(x + 4) = 0$



11) $(2x - 1)(3x + 2) = 0$



Homework: pg. 429-431 #10-36 even, 37, 42, 45, 46

Section 8-2 Vocab