## Algebra 2

3-02 Solve Quadratic Equations by Factoring (3.1)

## Factoring

- Factoring is the opposite of $\qquad$
- Factoring undoes
- $(x+2)(x+5)=x^{2}+7 x+10$
- $\quad x+2$ called $\qquad$
- $x^{2}+7 x+10$ called $\qquad$


## Factor a Quadratic in the form of $a x^{2}+b x+c$,

1. Factor out any $\qquad$ first, then factor what's left
2. Write two sets of $\qquad$ like ( ) ( ).
3. Guess: Find two expressions whose product is $\qquad$ and put them at the beginning of each set of parentheses.
4. Guess: Find two expressions whose product is $\qquad$ and put them at the end of each set of parentheses. Pay attention + and - signs.
5. Check: Calculate the $\qquad$ $+$ $\qquad$ and compare it to the middle $\qquad$ .
a. If the outers + inners $=b x$, then the factoring is $\qquad$ —.
b. If the outers + inners $=-b x$ (the correct number but wrong sign), then change the signs in the parentheses. Otherwise, $\qquad$ with new guesses.

## Factor

$x^{2}-3 x-18$

$$
n^{2}-3 n+9
$$

$r^{2}+2 r-63$
$14 x^{2}+2 x-12$
$3 x^{2}-18 x$
$2 x^{2}-32$

## Zero Product Property

- If $a \cdot b=0$, then either $a$ or $b$ is $\qquad$ -


## Solve a Quadratic Equation by Factoring

1. Make the quadratic expression equal $\qquad$ -.
2. $\qquad$ the quadratic expression.
3. Set each factor equal to $\qquad$ as two separate equations.
4. $\qquad$ each equation.
5. your solutions
Solve
$x^{2}-x-42=0$
$9 t^{2}-12 t+4=0$

$$
3 x-6=x^{2}-10
$$

$95 \# 21,23,25,27,29,30,31,36,39,41,43,45,47,59,61$, Mixed Review $=20$

