Today's Plan:

Learning Target (standard): I will solve quadratic equations by factoring them.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

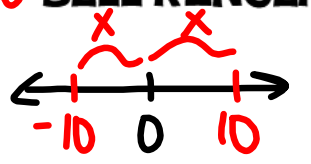
Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____ #108

BELL RINGER

1.) Evaluate $|x| = 10$. distance

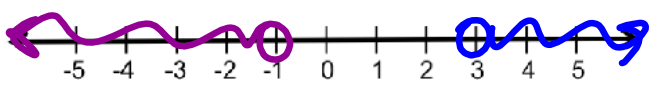
$x = -10, 10$



2.) Is the relation a function? {(1,1), (0,2), (3,3), (4,-1), (-1, 2)}

function

3.) Graph $x > 3$ or $x < -1$. Write the solution is set & interval form.



$\{x \mid x < -1, x > 3\}$

$(-\infty, -1) \cup (3, \infty)$

Factor.

$$18x^3 - 63x^2 + 9x$$

$9x(2x^2 - 7x + 1)$

2

+ $= -7$

Factor.

$$k^2 - 2k + 1$$

1

$-1 + -1 = -2$

$k^2 - k - k + 1$

$k(k-1) - 1(k-1)$

$(k-1)(k-1)$

$(k-1)^2$

Factor.

$5m^2 + 24m + 16$

80

20 + 4 = 24

$5m^2 + 20m + 4m + 16$

$5m(m+4) + 4(m+4)$

$(m+4)(5m+4)$

Factor.

$4m^2 - 9n^2$

$(2m+3n)(2m-3n)$

Factor.

$$y^2 - 7y + 12$$

12

-3 + -4 = -7

$y^2 - 3y - 4y + 12$

$y(y-3) - 4(y-3)$

$(y-3)(y-4)$

Factor.

$$x^2 + 16x + 48$$

48

12 + 4 = 16

$x^2 + 12x + 4x + 48$

$x(x+12) + 4(x+12)$

$(x+12)(x+4)$

Factor.

$$n^2 + 12n - 45$$

45

15 − 3 = 12

$n^2 + 15n - 3n - 45$

$n(n+15) - 3(n+15)$

$(n+15)(n-3)$

Factor.

$$8a^2 - 17a + 2$$

16

−16 + −1 = −17

$8a^2 - 16a - a + 2$

$8a(a-2) - 1(a-2)$

$(a-2)(8a-1)$

Factor.

$$3x-6-8x-4x^2$$

$-4x^2-5x-6$

$-1(4x^2+5x+6)$

24

$+ \quad = 5$

Factor.

$$\underset{2xy}{2x^3y}-\underset{2xy}{50xy}$$

$2xy(x^2-25)$

$2xy(x+5)(x-5)$

Quadratic Equations:

- A quadratic equation is an equation of the form $ax^2 + bx + c = 0$ where a, b and c are numbers and $a \neq 0$
- A quadratic equation is in standard form when it is in descending order and equal to 0
- The first term (the one with the square) is known as the quadratic term
- The second term (the one with the variable, but no exponent) is known as the linear term

Solving Equations by Factoring:

- Set the equation equal to 0
- Be sure to keep the quadratic term (the one with the exponent) positive
- Completely factor the non-zero side
- GCF
- Difference of squares
- Split the middle
- Set each factor equal to zero and solve
- These solutions are the solutions to the equation, so write as one solution

Solve.

$y^2 - 2y - 35 = 0$

35
5 − 7 = −2

$y^2 + 5y - 7y - 35 = 0$

$y(y+5) - 7(y+5) = 0$

$(y+5)(y-7) = 0$

$y+5=0 \quad y-7=0$

$y=-5 \quad y=7$

$y=-5,7$

Solve.

$x^2 + 14x + 48 = 0$

48
6 + 8 = 14

$x^2 + 6x + 8x + 48 = 0$

$x(x+6) + 8(x+6) = 0$

$(x+6)(x+8) = 0$

$x+6=0 \quad x+8=0$

$x=-6 \quad x=-8$

$x=-6,-8$

Solve.

$$7x^2 = 18x - 11$$

$7x^2 - 18x + 11 = 0$

77

$-11 + -7 = -18$

$7x^2 - 11x - 7x + 11 = 0$

$x(7x-11) - 1(7x-11) = 0$

$(7x-11)(x-1) = 0$

$7x - 11 = 0$ $\quad x - 1 = 0$

$7x = 11$ $\quad x = 1$

$x = \frac{11}{7}$

$x = \frac{11}{7}, 1$

Assignment:

Solving Quadratics 1

#1-10