Today's Plan:

Learning Target (standard): I will solve quadratic equations by factoring and using the square root property.

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.

Solve by Factoring:

$$y^2 - 6y + 9 = 0$$

$(y-3)(y-3)=0$

$(y-3)^2=0$

$y-3=0$

$y=3$

Solve by Factoring:

$$x^2 + 10x + 25 = 0$$

$(x+5)(x+5)=0$

$(x+5)^2=0$

$x+5=0$

$x=-5$

Solve by Factoring:

$$v^2 + 10 = 7v$$

$v^2-7v+10=0$

$(v-5)(v-2)=0$

$v=5,2$

Solve by Factoring:

$$t^2 - 16 = 15t$$

$t^2 - 15t - 16 = 0$

$(t-16)(t+1) = 0$

$t = 16, -1$

Solve by Factoring:

$$2x^2 - 9x - 18 = 0$$

$(2x+3)(x-6) = 0$

$x = -\frac{3}{2}, 6$

Solve by Factoring:

$$4z^2 - 9z = -2$$

$4z^2-9z+2=0$

8
-1 +-8 = -9

$4z^2-z-8z+2=0$

$z(4z-1)-2(4z-1)=0$

$(4z-1)(z-2)=0$

$z=\frac{1}{4}, 2$

Quadratic Equations:

- A quadratic equation is an equation of the form $ax^2 + bx + c = 0$, where a, b, and c are constants and $a \neq 0$
- A quadratic equation is in standard from when the polynomial is in descending order and equal to 0.
- Since the degree of the polynomial is 2, a quadratic equation is also called a second-degree equation. highest exponent
- The first term is known as the quadratic term. (ax^2)
- The second term is known as the linear term. (bx)

$ax^2+bx+c=0$

quadratic term

linear term

constant

Methods for Solving Quadratic Equations:

- Factoring
- Square Root Property
- Completing the Square
- Quadratic Formula

Factoring:

- the quadratic equation must be set equal to 0 "standard form"
- the equation must be factorable
- if there is more than one variable, you must be told which variable to solve for

$ax^2+bx+c=0$ (+)

$u^2-2u+4=(2u-3)(u+2)$

$u^2-2u+4=2u^2+4u-3u-6$

$u^2-2u+4=2u^2+u-6$

$-u^2+2u-4 \quad -u^2+2u-4$

$0=u^2+3u-10$

$0=(u+5)(u-2)$

$u+5=0 \quad u-2=0$

$u=-5, 2$

Solve by Factoring:

$(3x-4)(x+4) = x^2 - 3x - 28$

$3x^2+12x-4x-16 = x^2-3x-28$

$3x^2+8x-16 = x^2-3x-28$

$-x^2 \quad +3x \quad +28 \quad -x^2+3x+28$

$2x^2+11x+12=0$ $\quad 24 \rightarrow 8+3=11$

$2x^2+8x+3x+12=0$

$2x(x+4)+3(x+4)=0$

$(x+4)(2x+3)=0$

$x+4=0 \quad 2x+3=0$

$x=-4, -\frac{3}{2}$

Solve for *x* by factoring:

$6x^2 - 11cx + 3c^2 = 0$ $\quad 18 \rightarrow -9+-2=-11$

$6x^2-9cx-2cx+3c^2=0$

$3x(2x-3c)-c(2x-3c)=0$

$(2x-3c)(3x-c)=0$

$2x-3c=0 \quad 3x-c=0$

$\frac{2x}{2}=\frac{3c}{2} \quad \frac{3x}{3}=\frac{c}{3}$

$x=\frac{3c}{2} \quad x=\frac{c}{3}$

$x=\frac{3c}{2}, \frac{c}{3}$

Assignment:

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