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.

p.320 #4-44 (by 4)

$4) p = -9, 9$

$8) x = -5$

$12) p = -6, 1$

$16) y = -\frac{2}{3}, 2$

$20) r = -2, \frac{3}{2}$

$24) y = -\frac{3}{4}, \frac{1}{2}$

$28) v = -\frac{1}{3}, 6$

$32) x = -8a, -6a$

$36) x = -4a, 5a$

$40) x = -\frac{3}{2}y, 3y$

$44) x = \frac{1}{3}c, \frac{3}{2}c$

Solve by Factoring:

$2s^2 - 9s = -9$

$2s^2-9s+9=0$ $\quad 18$ / $-6 + -3 = -9$

$2s^2-6s-3s+9=0$

$2s(s-3)-3(s-3)=0$

$(s-3)(2s-3)=0$

$s=3,\frac{3}{2}$

Solve by Factoring:

$3y^2 - 4y - 4 = 0$

12 / $2 \quad -6 = -4$

$3y^2+2y-6y-4=0$

$y(3y+2)-2(3y+2)=0$

$(3y+2)(y-2)=0$

$y=-\frac{2}{3},2$

Solve for x by factoring:

$4x^2 + 8xy + 3y^2 = 0$

12
$6 + 2 = 8$

$4x^2+6xy+2xy+3y^2=0$

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

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

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

$2x=-3y \quad 2x=-y$

$x=\frac{-3y}{2}\left(-\frac{3}{2}y\right) \quad x=\frac{-y}{2}\left(-\frac{1}{2}y\right)$

$x=-\frac{3}{2}y, -\frac{1}{2}y$

Write a quadratic equation that has integer coefficients and has as solutions the given pair of numbers.

$ax^2+bx+c=0$

-2 and 5

$x=-2, 5$

$x=-2 \quad x=5$

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

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

$x^2-5x+2x-10=0$

$x^2-3x-10=0$

Write a quadratic equation that has integer coefficients and has as solutions the given pair of numbers.

$-\frac{5}{6}$ and $\frac{2}{3}$

$x = -\frac{5}{6}$ $\quad x = \frac{2}{3}$

$6x = -5$ $\quad 3x = 2$

$6x + 5 = 0$ $\quad 3x - 2 = 0$

$(6x+5)(3x-2) = 0$

$18x^2 - 12x + 15x - 10 = 0$

$18x^2 + 3x - 10 = 0$

Square Root Property:

- quadratic equation must be in the form of a "square" equals a constant
- solve by taking the square root of both sides

* when you "physically" take a square root, you will have two possible solutions - a positive and a negative one

$r^2 - 75 = 0$

$\sqrt{r^2} = \pm\sqrt{75}$

$r = 5\sqrt{3}, -5\sqrt{3}$

$x^2 - 4 = 0$

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

$x = -2, 2$

$x^2 - 4 = 0$

$\sqrt{x^2} = \pm\sqrt{4}$

$x = 2, -2$

Solve by taking square roots:

$$(x-2)^2 = -4$$

$\pm\sqrt{\quad}$

$x-2 = 2i, -2i$

$x = 2+2i, 2-2i$

Solve by taking square roots:

$$\frac{3(x-4)^2}{3} = \frac{-12}{3}$$

$(x-4)^2 = -4$ $\pm\sqrt{\quad}$

$a+bi$

$x-4 = 2i, -2i$

$x-4=2i$ $x-4=-2i$

$x = 4+2i, 4-2i$

Solve by taking square roots:

$$(s-2)^2-24=0$$

$\sqrt{(s-2)^2}=\pm\sqrt{24}$

$24 = 4 \cdot 6$

$2\sqrt{6}$

$s-2=2\sqrt{6},-2\sqrt{6}$

$s=2+2\sqrt{6},2-2\sqrt{6}$

Solve by taking square roots:

$$\left(u+\frac{2}{3}\right)^2-18=0$$

$\sqrt{\left(u+\frac{2}{3}\right)^2}=\pm\sqrt{18}$

$18 = 9 \cdot 2$

$3\sqrt{2}$

$u+\frac{2}{3}=3\sqrt{2},-3\sqrt{2}$

$u=-\frac{2}{3}+3\sqrt{2},-\frac{2}{3}-3\sqrt{2}$

Solve by taking square roots:

$$\left(x+\frac{1}{2}\right)^2+40=0$$

$\sqrt{\left(x+\frac{1}{2}\right)^2} = \pm\sqrt{-40}$

$40 = 4 \cdot 10$

$2\sqrt{10}$

$x+\frac{1}{2} = 2\sqrt{10}\,i, -2\sqrt{10}\,i$

$x = -\frac{1}{2}+2\sqrt{10}\,i, -\frac{1}{2}-2\sqrt{10}\,i$

Assignment:

p.321 #48-100 (by 4)