Today's Plan:

Learning Target (standard): I will use the remainder theorem and factor to theorem to locate zeros of polynomials. I will use the zeros to factor the ploynomial.

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, and take a quiz.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide quiz problems.

Assessment: Board work, homework check and quiz

Differentiation: Students will work at the board, go over and correct homework at their seats, and actively engage in quiz problems.

Quadratics & Factoring Review:

1) $x=-7,-6$

2) $n=5,8$

3) $r=\sqrt{10},-\sqrt{10}$

4) $x=2\sqrt{2}i,-2\sqrt{2}i$

5) $k=-5,1$

6) $x=-\frac{3}{2},11$

7) $a=\frac{2}{9}+\frac{5\sqrt{2}}{9}i,\frac{2}{9}-\frac{5\sqrt{2}}{9}i$

8) $b=\frac{4}{7}+\frac{\sqrt{5}}{7}i,\frac{4}{7}-\frac{\sqrt{5}}{7}i$

9) $-3(u+3)(u^2-3u+9)$

10) $5(a+5)(9a-8)$

11) $f(-3)=2$

12) $f(6)=-12$

13) $f(x)=(x-3)(x+i)(x-i)(\sqrt{2}x+\sqrt{5}i)(\sqrt{2}x-\sqrt{5}i)$

$zeros: x=3,-i,i,-\frac{\sqrt{10}}{2}i,\frac{\sqrt{10}}{2}i$

Simplify:

$$\frac{9x+4}{2x-5}$$

$\frac{9}{2}$

$2x-5 \overline{)\ 9x+4}$

$\frac{9x}{2x}$

$-9x+\frac{45}{2}$

$\frac{53}{2}$

$$= \frac{9}{2} + \frac{53}{2(2x-5)}$$

List the possible rational zeros:

$$f(x) = 6x^4 + 2x^3 - x^2 + 20$$

MN2: 4

p: $\pm 1, \pm 2, \pm 4, \pm 5, \pm 10, \pm 20$

q: $\pm 1, \pm 2, \pm 3, \pm 6$

$\frac{p}{q}$: $\pm 1, \pm \frac{1}{2}, \pm \frac{1}{3}, \pm \frac{1}{6}, \pm 2, \pm \frac{2}{3}, \pm 4, \pm \frac{4}{3}, \pm 5, \pm \frac{5}{2}, \pm \frac{5}{3}, \pm \frac{5}{6}, \pm 10, \pm \frac{10}{3}, \pm 20, \pm \frac{20}{3}$

Solve by completing the square.

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

$\frac{9x^2}{9} - \frac{6x}{9} = -\frac{2}{9}$

$x^2 - \frac{2}{3}x + \frac{1}{9} = -\frac{2}{9} + \frac{1}{9}$

$(x - \frac{1}{3})^2 = -\frac{1}{9}$

$x - \frac{1}{3} = \frac{1}{3}i, -\frac{1}{3}i$

$x = \frac{1}{3} + \frac{1}{3}i, \frac{1}{3} - \frac{1}{3}i$