Today's Plan:

Learning Target (standard): I will review for the semester exam.

Students will: Complete practice problems over previous concepts at the boards and study for my exam.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuarcy and provide students feedback, describe and provide examples of exam problems.

Assessment: Board work

Differentiation: Students will work at the board, actively engage in practice review concepts with the aid of other students and the teacher.

Factor each completely.

36) $24m^2 - 90mn - 150n^2$

$6(4m^2 - 15mn - 25n^2)$

$6(4m + 5n)(m - 5n)$

37) $-60x^2 - 234xy + 162y^2$

$-6(10x^2 + 39xy - 27y^2)$

$-6(5x - 3y)(2x + 9y)$

38) $27u^2 + 21uv - 6v^2$

$3(9u^2 + 7uv - 2v^2)$

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

39) $40m^3 - 280m^2n$

$40m^2(m - 7n)$

40) $20m^4 - 39m^2 + 7$

$(5m^2 - 1)(4m^2 - 7)$

41) $12m^4 - 86m^2 + 144$

$2(6m^4 - 43m^2 + 72)$

$2(3m^2 - 8)(2m^2 - 9)$

42) $96xy + 32xa - 36ay - 12a^2$

$-12a^2 + 32ax - 36ay + 96xy$
$-4a(3a - 8x) - 12y(3a - 8x)$
$(3a - 8x)(-4a - 12y)$
$-4(3a - 8x)(a + 3y)$

43) $18mn - 72m - 42rn + 168r$

$18m(n-4) - 42r(n-4)$
$(n-4)(18m - 42r)$
$6(n-4)(3m - 7r)$

44) $63pc + 42pd^2 + 45qc + 30qd^2$

$21p(3c + 2d^2) + 15q(3c + 2d^2)$
$(3c + 2d^2)(21p + 15q)$
$3(3c + 2d^2)(7p + 5q)$

45) $90xy + 144xm^2 + 75my + 120m^3$

$18x(5y + 8m^2) + 15m(5y + 8m^2)$
$(5y + 8m^2)(18x + 15m)$
$3(5y + 8m^2)(6x + 5m)$

46) $18u^2 - 2v^2$

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

47) $2x^2 - 8y^2$

$2(x^2 - 4y^2)$
$2(x + 2y)(x - 2y)$

48) $20u^2 + 20uv + 5v^2$

$5(4u^2 + 4uv + v^2)$
$5(2u + v)(2u + v)$
$5(2u + v)^2$

49) $45x^2 + 120xy + 80y^2$

$5(9x^2 + 24xy + 16y^2)$
$5(3x + 4y)(3x + 4y)$
$5(3x + 4y)^2$

50) $648u^3 - 3$

$3(216u^3 - 1)$
$3(6u - 1)(36u^2 + 6u + 1)$

51) $81x^3 - 3$

$3(27x^3 - 1)$
$3(3x - 1)(9x^2 + 3x + 1)$

Expand completely.

52) $(2x + 3y)$

53) $(3x + 2y)$

Divide.

54) $(5n^5 - 29n^4 + 18n^3 + 20n^2 - 54n + 25) \div (n - 5)$

$5 \underline{|\ 5 \quad -29 \quad 18 \quad 20 \quad -54 \quad 25}$
$\quad\quad\ 25 \ -20 \ -10 \quad 50 \ -20$
$\overline{\quad\ 5 \ \ -4 \ \ -2 \quad 10 \quad -4 \quad 5}$

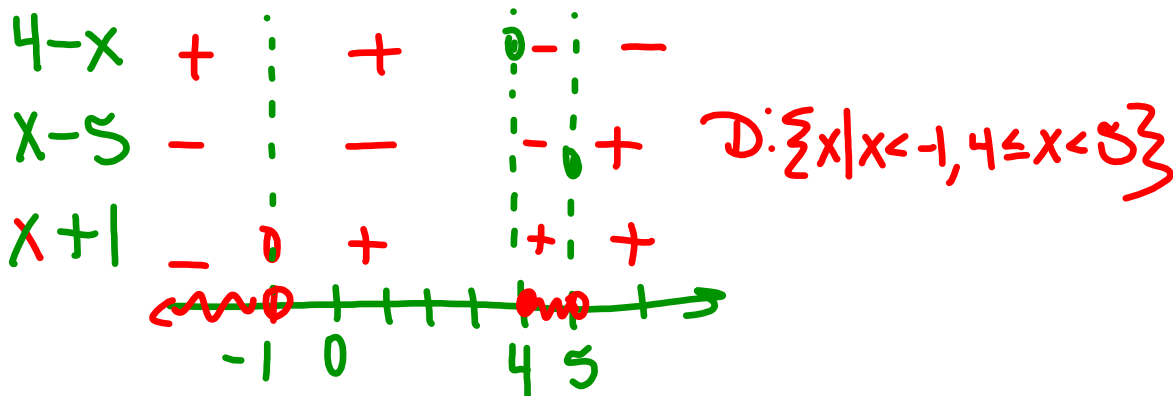$5n^4 - 4n^3 - 2n^2 + 10n - 4 + \dfrac{5}{n-5}$

55) $(3k^5 + 19k^4 - 35k^3 + 41k^2 - 27k - 2) \div (3k - 2)$

Find the domain.

$$f(x) = \sqrt{\dfrac{4-x}{x^2 - 4x - 5}}$$

$$\dfrac{4-x}{(x-5)(x+1)} \geq 0$$

$4-x$	$+$		$+$	$-$	$-$
$x-5$	$-$		$-$	$-$	$+$
$x+1$	$-$	0	$+$	$+$	$+$

$$D: \{x \mid x < -1, 4 \leq x < 5\}$$

Number line marked at -1, 0, 4, 5.

State the possible rational zeros for each function. Then factor each and find all zeros.

56) $f(x) = 2x^3 + 5x^2 + x - 2$

$P: \pm 1, \pm 2$

$q: \pm 1, \pm 2$

$\dfrac{P}{q}: \pm 1, \pm \dfrac{1}{2}, \pm 2$

$$\begin{array}{r|rrrr} -1 & 2 & 5 & 1 & -2 \\ & & -2 & -3 & 2 \\ \hline & 2 & 3 & -2 & 0 \end{array}$$

$f(x) = (x+1)(2x^2 + 3x - 2)$

$f(x) = (x+1)(2x-1)(x+2)$

zeros: $x = -1, \dfrac{1}{2}, -2$

57) $f(x) = 5x^3 + 11x^2 + 7x + 1$

58) $f(x) = 2x^3 + 5x^2 + 4x + 1$

59) $f(x) = 5x^3 - 29x^2 + 19x + 5$

State the possible rational roots for each equation. Then factor each and find all roots.

60) $3x^5 - 9x^4 - 2x^3 + 6x^2 - 5x + 15 = 0$

61) $2x^5 + 4x^4 - 5x^3 - 10x^2 - 25x - 50 = 0$