Today's Plan:

Learning Target (standard): I will prepare for the final exam.

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 complete practice problems over past concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of past 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 practice/review problems.

Binomial Expansion Practice

$$9) 32y^5 - 80y^4 + 80y^3 - 40y^2 + 10y - 1$$

$$10) a^5 - 10a^4b^3 + 40a^3b^6 - 80a^2b^9 + 80ab^{12} - 32b^{15}$$

$$1) 64m^3 + 48m^2 + 12m + 1$$

$$2) m^{16} - 4m^{12}n^2 + 6m^8n^4 - 4m^4n^6 + n^8$$

$$3) 256v^{16} - 256v^{12} + 96v^8 - 16v^4 + 1$$

$$4) y^6 + 9y^4 + 27y^2 + 27$$

$$5) 32x^5 - 80x^4y + 80x^3y^2 - 40x^2y^3 + 10xy^4 - y^5$$

$$6) 125m^3 + 75m^2n + 15mn^2 + n^3$$

$$7) 243y^{15} - 405y^{12} + 270y^9 - 90y^6 + 15y^3 - 1$$

$$8) x^6 - 6x^5y + 15x^4y^2 - 20x^3y^3 + 15x^2y^4 - 6xy^5 + y^6$$

Use the binomial expansion theorem.

$$(3x^2 - 2y)^4 = (1)(3x^2)^4(-2y)^0 + (4)(3x^2)^3(-2y)^1 + (6)(3x^2)^2(-2y)^2$$

$$+ (4)(3x^2)^1(-2y)^3 + (1)(3x^2)^0(-2y)^4$$

1 1
1 2 1
1 3 3 1
1 4 6 4 1

$$= (1)(81x^8)(1) + (4)(27x^6)(-2y) + (6)(9x^4)(4y^2)$$

$$+ (4)(3x^2)(-8y^3) + (1)(1)(16y^4)$$

$$= 81x^8 - 216x^6y + 216x^4y^2 - 96x^2y^3 + 16y^4$$
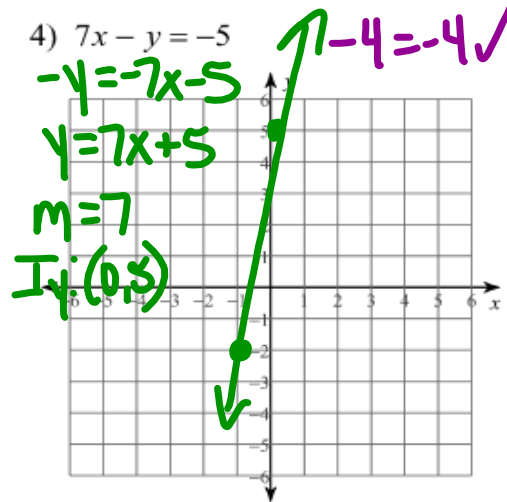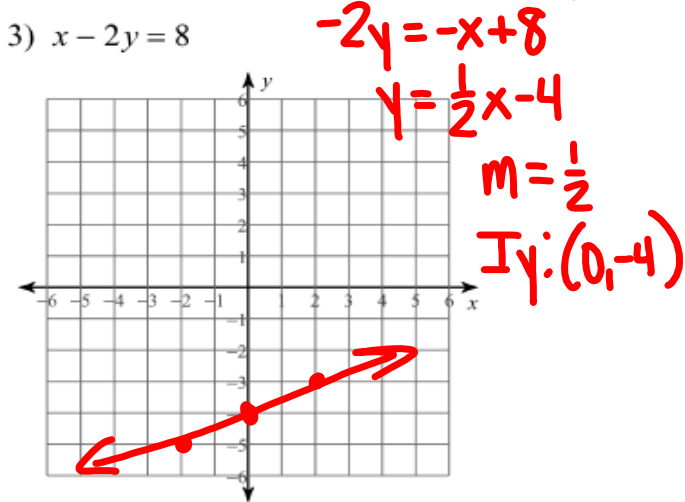
Use the binomial expansion theorem.

$$\left(\underline{a^4} + \underline{2b^3}\right)^5 = (1)(a^4)^5(2b^3)^0 + (5)(a^4)^4(2b^3)^1 + (10)(a^4)^3(2b^3)^2$$

$$+ (10)(a^4)^2(2b^3)^3 + (5)(a^4)^1(2b^3)^4 + (1)(a^4)^0(2b^3)^5$$

$$1$$
$$1 \quad 1$$
$$1 \quad 2 \quad 1$$
$$1 \quad 3 \quad 3 \quad 1$$
$$1 \quad 4 \quad 6 \quad 4 \quad 1$$
$$1 \quad 5 \quad 10 \quad 10 \quad 5 \quad 1$$

$$= (1)(a^{20})(1) + (5)(a^{16})(2b^3) + (10)(a^{12})(4b^6)$$

$$+ (10)(a^8)(8b^9) + (5)(a^4)(16b^{12}) + (1)(1)(32b^{15})$$

$$= a^{20} + 10a^{16}b^3 + 40a^{12}b^6 + 80a^8b^9 + 80a^4b^{12} + 32b^{15}$$

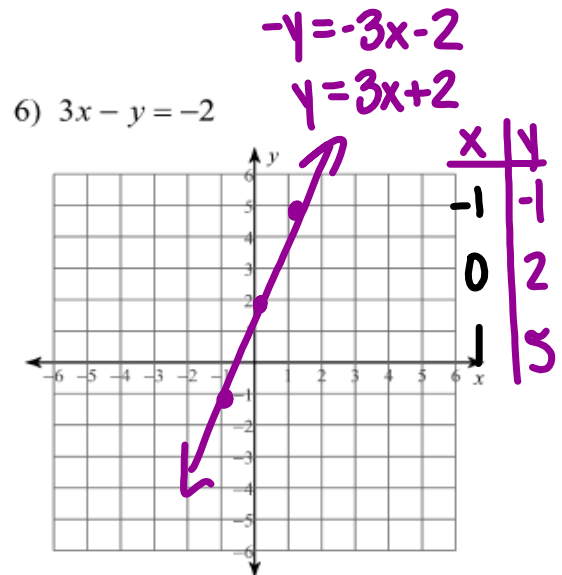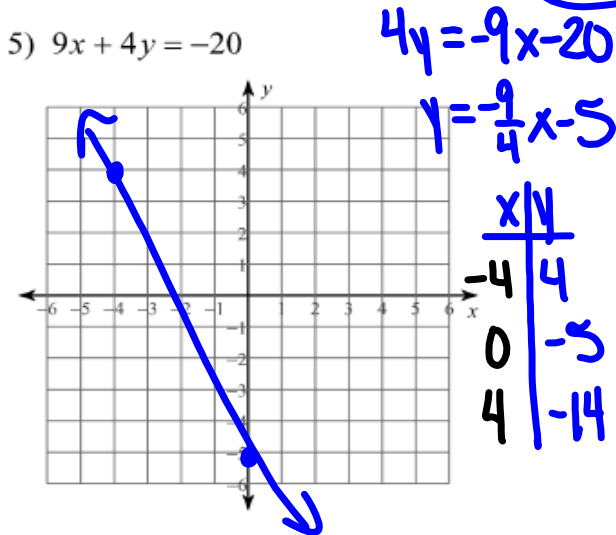**Solve each equation. Remember to <u>check</u> for <u>extraneous</u> <u>solutions</u>.**

1) $-1 = -10 + \sqrt{9 - 9n}$

$(9)^2 = (\sqrt{9 - 9n})^2$

$81 = 9 - 9n$

$72 = -9n$

$\boxed{n = -8}$

$-1 = -10 + \sqrt{81}$
$-1 = -10 + 9$
$-1 = -1 \checkmark$

2) $-4 = -2\sqrt{\dfrac{p}{10}}$ $P = 40$

$(2)^2 = \left(\sqrt{\dfrac{P}{10}}\right)^2$

$10\left[4 = \dfrac{P}{10}\right]$

$-4 = -2\sqrt{\dfrac{40}{10}}$
$-4 = -2\sqrt{4}$
$-4 = -2 \cdot 2$
$-4 = -4 \checkmark$

Sketch the graph of each line using the slope-intercept method.

3) $x - 2y = 8$

$-2y = -x + 8$
$y = \tfrac{1}{2}x - 4$
$m = \tfrac{1}{2}$
$Iy: (0, -4)$

4) $7x - y = -5$

$-y = -7x - 5$
$y = 7x + 5$
$m = 7$
$Iy: (0, 5)$

Sketch the graph of each line using a (t-chart.)

5) $9x + 4y = -20$

$4y = -9x - 20$
$y = -\tfrac{9}{4}x - 5$

x	y
-4	4
0	-5
4	-14

6) $3x - y = -2$

$-y = -3x - 2$
$y = 3x + 2$

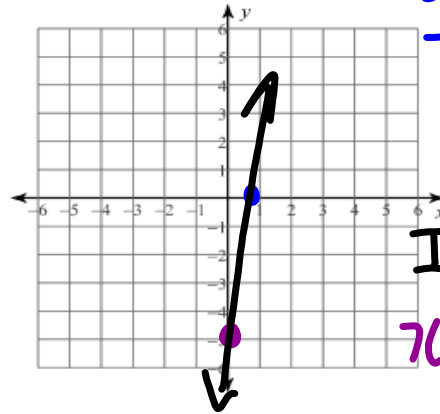| x	y
-1	-1
0	2
1	5

Sketch the graph of each line using the intercept method.

7) $x + 2y = -2$

$I_x: (-2, 0)$

$I_y: (0, -1)$

$x + 2(0) = -2$

$x = -2$

$0 + 2y = -2$

$y = -1$

8) $7x - y = 5$

$I_x: (\frac{5}{7}, 0)$

$7x - 0 = 5$

$7x = 5$

$x = \frac{5}{7}$

$I_y: (0, -5)$

$7(0) - y = 5$

$-y = 5$

$y = -5$

Write the slope-intercept form of the equation of the line through the given points.

9) through: $(-3, 0)$ and $(-4, -1)$

$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 0}{-4 + 3} = \frac{-1}{-1}$

$m = 1$

$y = mx + b$

$0 = 1(-3) + b$

$0 = -3 + b$

$b = 3$

$y = x + 3$

Write the slope-intercept form of the equation of the line described.

$m_1 = m_2$

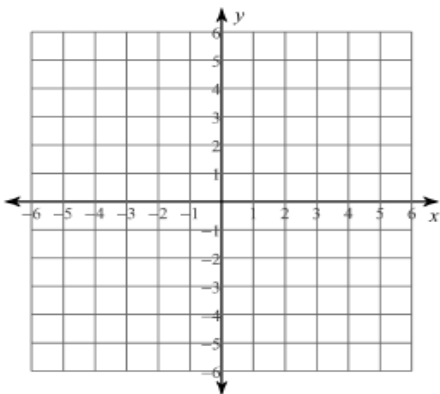10) through: $(-1, -2)$, parallel to $y = \frac{1}{3}x - 5$

$m_{//} = \frac{1}{3}$ $y = mx + b$ $M = 3$

$-2 = \frac{1}{3}(-1) + b$ $b = -\frac{5}{3}$ $y = \frac{1}{3}x - \frac{5}{3}$

$-2 = -\frac{1}{3} + b$

$m_1 = -\frac{1}{m_2}$

11) through: $(-4, -5)$, perp. to $y = -\frac{2}{3}x - 4$

$m_\perp = \frac{3}{2}$ $-5 = -6 + b$ $m = -\frac{2}{3}$

$y = mx + b$

$-5 = \frac{3}{2}(-4) + b$ $b = 1$

$y = \frac{3}{2}x + 1$

Sketch the graph of each linear inequality using the slope-intercept method.

12) $x - 2y > 4$

13) $y \le 2$