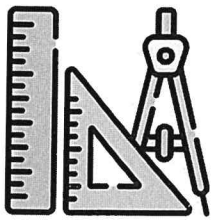


Welcome to Honors Geometry!!

I am looking forward to being a part of your freshman year here at ABHS. In secondary school we primarily study Euclidean Geometry, which utilizes several of the algebraic concepts you studied this year. This summer packet is designed to help you keep up with the concepts in order to help optimize your success. The concepts include:

Solving one, two, and multi-step equations

Slope-Intercept Form

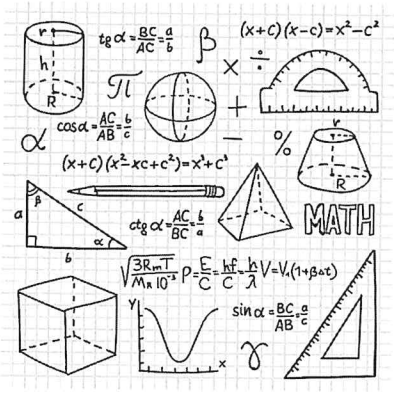
Standard Form

Changing Forms of Linear Equations

Finding Slopes, x-intercepts, and y-intercepts

Finding the Midpoint

Solving Systems of Linear Equations



Multiplying Binomials

Factoring Quadratic Equations

Solving Quadratic Equations (Including Quadratic Formula)

Linear Inequalities

Simplifying Radicals

Solving Proportions

Rules of Exponents

Simplifying Expressions

Pythagorean Theorem and Distance Formula

The packet is due the first full day of class. If you do 1-2 problems a day, you should easily finish. We will go over the packet the first few days followed by an assessment on it. Please do not wait until the last minute!!! There are several good sites that you can access through Google. Khan Academy and mathway.com are two good resources. A graphing calculator is highly recommended. You can also use IXL as resource for help. Answers are attached to packet for reference. Feel free to reach out via email.

mroman@abs.misd.net

I will do my best to answer quickly. Have a great summer!!!!! See you in September!! ☺

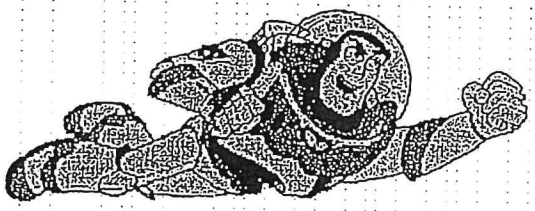
M. Roman

Name: _____

Anchor Bay High School

Honors Geometry

Summer Review Packet



Honors Geometry Name_____ ID: 1

Summer Algebra 1 Review Please do all work on a seperate sheet of paper and box final answers.

Find the distance between each pair of points. Leave your answer in simpliest radical form. .

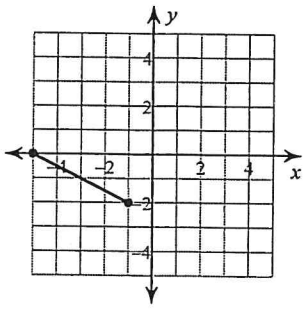
1) $(6, 6), (-4, -2)$

2) $(-8, -7), (-7, -3)$

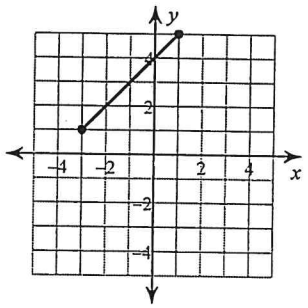
3) $(3\sqrt{6}, 0), (\sqrt{6}, -7)$

4) $(3, -5\sqrt{2}), (5, \sqrt{2})$

5)



6)



Solve each equation. Leave your answer as an improper fraction where appropriate.

7) $\frac{1}{2}p - \frac{3}{2}p = \frac{9}{4}$

8) $\frac{3}{2}x + \frac{7}{4}x = -\frac{65}{8}$

9) $-\frac{7}{2}\left(\frac{5}{2}x - \frac{7}{3}\right) = 49$

10) $-\frac{11}{3}\left(\frac{5}{2}k + \frac{1}{2}\right) = -\frac{517}{12}$

Solve each proportion. Leave your answer as an improper fraction where appropriate.

11) $\frac{m}{9} = \frac{9}{4}$

12) $\frac{4}{9} = \frac{n}{4}$

13) $\frac{r-7}{7} = \frac{6}{8}$

14) $\frac{10}{x+10} = \frac{4}{10}$

15) $\frac{b+6}{9} = \frac{b+7}{12}$

16) $\frac{x-10}{11x-4} = \frac{12}{4}$

Factor each completely.

17) $m^2 - 3m$

18) $b^2 + 7b - 8$

19) $3k^2 - 14k + 15$

20) $2r^2 + r - 36$

Solve each quadratic equation using any of the five (5) methods to solve. Round decimals to tenths place.

21) $p^2 + 5p - 14 = 0$

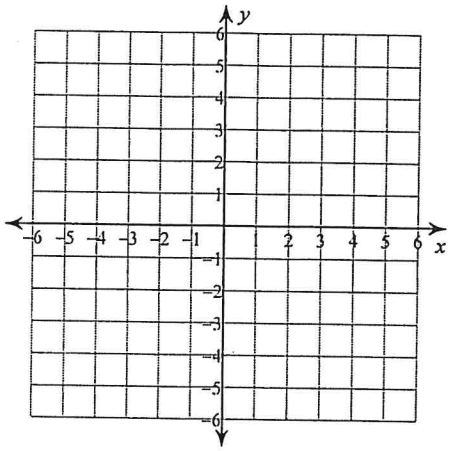
22) $2m^2 - 5m - 12 = 0$

23) $4n^2 - 14 = -10n$

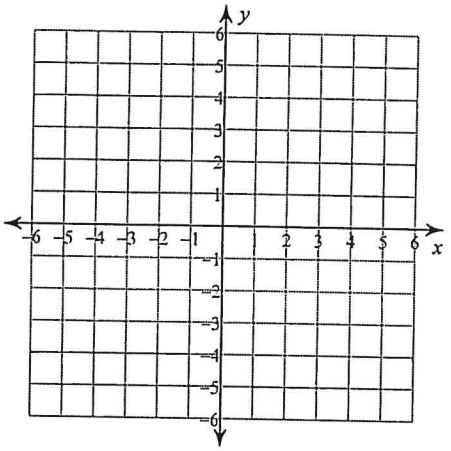
24) $4a^2 - a = 5$

Sketch the graph of each line. Be sure to label the y - intercept and one other point.

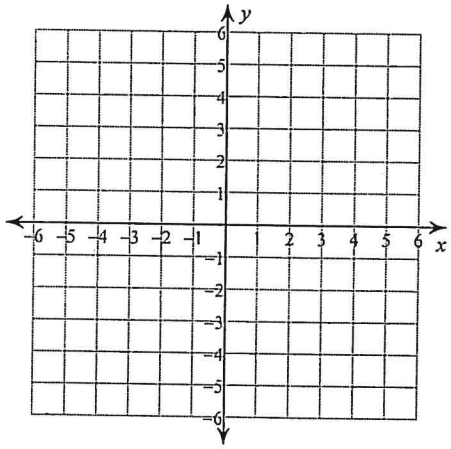
25) $y = 3$



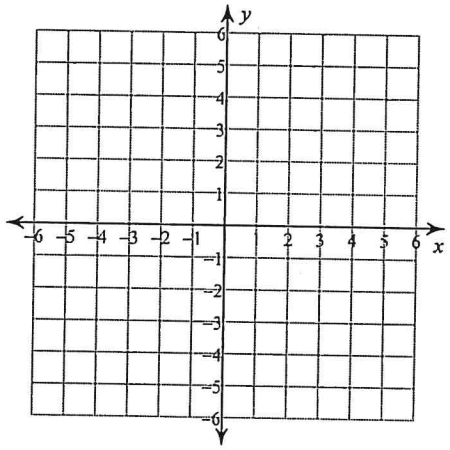
26) $y = \frac{4}{3}x - 1$



27) $4x + y = -1$

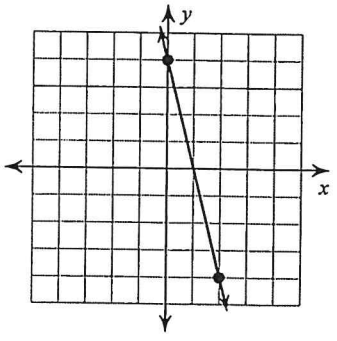


28) $3x - 2y = 4$

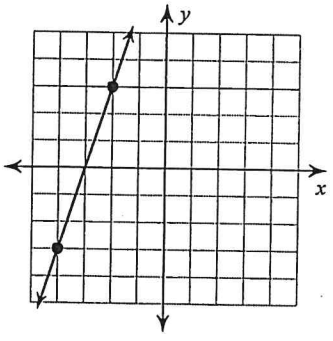


Find the slope of each line.

29)



30)



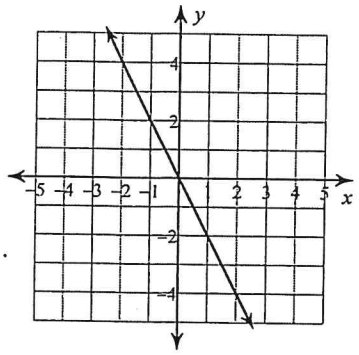
Find the slope of the line through each pair of points. Leave your answer as an improper fraction.

31) $(13, 19), (-10, 19)$

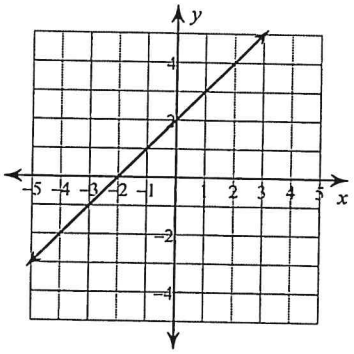
32) $(9, -2), (-19, 14)$

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

33)



34)



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

35) through: $(4, 1)$ and $(-2, 5)$

36) through: $(-3, 1)$ and $(-2, -2)$

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

37) through: $(-1, -4)$, parallel to $y = 2x + 3$

38) through: $(2, 0)$, perp. to $y = -\frac{2}{3}x + 3$

Find the midpoint of the line segment with the given endpoints.

39) $(2, -6)$, $(2, -3)$

40) $(6, -9)$, $(8, -6)$

Simplify the following radical expressions. Remember the rules for "Simpliest Radical Form" apply.

41) $2\sqrt{2} - 2\sqrt{3} - 2\sqrt{3}$

42) $2\sqrt{2} + 2\sqrt{2} - \sqrt{2}$

43) $-\sqrt{2} - \sqrt{2} - 2\sqrt{8}$

44) $10\sqrt{300}$

45) $-9\sqrt{640}$

46) $-7\sqrt{288}$

47) $-4\sqrt{80}$

48) $\frac{\sqrt{6}}{4\sqrt{3}}$

49) $\frac{5\sqrt{6}}{\sqrt{2}}$

50) $\sqrt{6} \cdot \sqrt{2}$

51) $\sqrt{15}(\sqrt{5} + 4)$

52) $(\sqrt{2} - 4\sqrt{3})(\sqrt{4} + \sqrt{3})$

Solve each system by substitution. Remember to state your answer as an ordered pair.

53) $y = -2x - 6$
$y = 8x - 6$

54) $y = 7x + 1$
$-x + 8y = 8$

55) $-5x + y = 24$
$5x - 7y = 12$

56) $-8x + 4y = 12$
$-5x + y = -3$

Solve each system by elimination. Remember to state your answer as an ordered pair.

57) $2x - 3y = -19$
$2x + 6y = 26$

58) $-5x + 4y = -4$
$-5x + 2y = -12$

59) $9x + 16y = 11$
$2x + 8y = -2$

60) $3x - 5y = -7$
$7x - 9y = -3$

Simplify each sum. Be sure your answer is in standard form.

61) $(3n^3 - n^2 + 7) + (4n^2 - 4n^4 + 6n^3)$

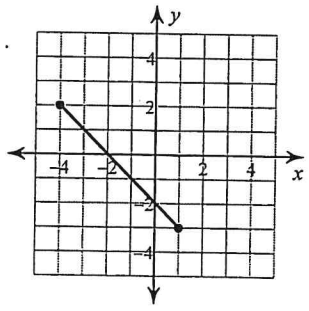
For #62: Simplify each difference. Be sure your answer is in standard form.

62) $(6p^4 - p^3 - 3) - (7p^4 + p^2 + 6p^3)$

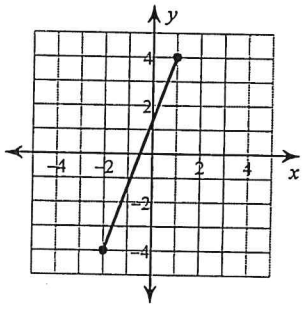
63) If the hypotenuse of a right triangle is 5 meters long, and one leg of the triangle is 4 meters long, what is the length of the third side?

Use the Pythagorean theorem to find the length of the given segment. Leave your answer in simplest radical form.

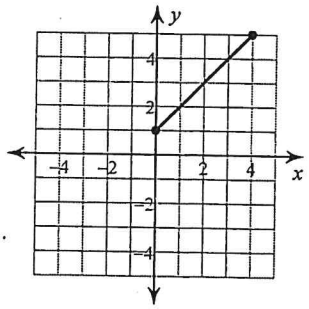
64)



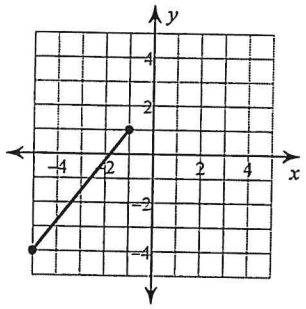
65)



66)

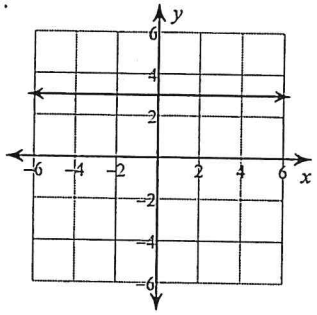


67)

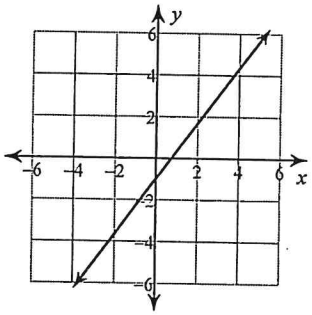


Answers to Summer Algebra 1 Review (ID: 1)

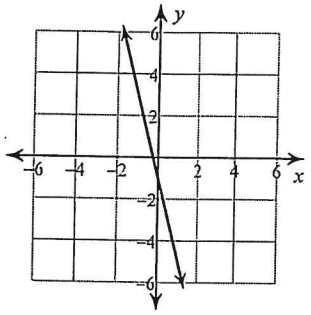
1) $2\sqrt{41}$
2) $\sqrt{17}$
3) $\sqrt{73}$
4) $2\sqrt{19}$
5) $2\sqrt{5}$
6) $4\sqrt{2}$
7) $\left\{-\frac{9}{4}\right\}$
8) $\left\{-\frac{5}{2}\right\}$
9) $\left\{-\frac{14}{3}\right\}$
10) $\left\{\frac{9}{2}\right\}$
11) $\{20.25\}$
12) $\{1.77\}$
13) $\{12.25\}$
14) $\{15\}$
15) $\{-3\}$
16) $\{0.06\}$
17) $m(m-3)$
18) $(b-1)(b+8)$
19) $(3k-5)(k-3)$
20) $(2r+9)(r-4)$
21) $\{2, -7\}$
22) $\{4, -1.5\}$
23) $\{1, -3.5\}$
24) $\{1.25, -1\}$
25)



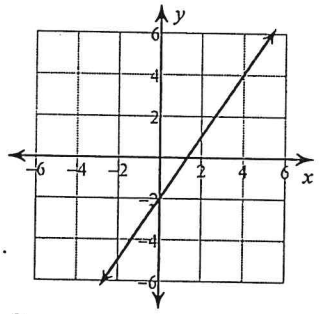
26)



27)



28)



29) -4
30) 3
31) 0
32) $-\frac{4}{7}$
33) $y=-2x$
34) $y=x+2$
35) $y=-\frac{2}{3}x+\frac{11}{3}$
36) $y=-3x-8$
37) $y=2x-2$
38) $y=\frac{3}{2}x-3$
39) $\left(2, -4\frac{1}{2}\right)$
40) $\left(7, -7\frac{1}{2}\right)$
41) $2\sqrt{2}-4\sqrt{3}$
42) $3\sqrt{2}$
43) $-6\sqrt{2}$
44) $100\sqrt{3}$
45) $-72\sqrt{10}$
46) $-84\sqrt{2}$
47) $-16\sqrt{5}$
48) $\frac{\sqrt{2}}{4}$
49) $5\sqrt{3}$
50) $2\sqrt{3}$
51) $5\sqrt{3}+4\sqrt{15}$
52) $2\sqrt{2}+\sqrt{6}-8\sqrt{3}-12$
53) $(0, -6)$
54) $(0, 1)$
55) $(-6, -6)$
56) $(2, 7)$
57) $(-2, 5)$
58) $(4, 4)$
59) $(3, -1)$
60) $(6, 5)$
61) $-4n^4+9n^3+3n^2+7$
62) $-p^4-7p^3-p^2-3$
63) 3m
64) $5\sqrt{2}$
65) $\sqrt{73}$
66) $4\sqrt{2}$
67) $\sqrt{41}$

① (x_1, y_1) (x_2, y_2) $(6,6), (-4,-2)$

$d = \sqrt{(-4-6)^2 + (-2-6)^2}$

$= \sqrt{(-10)^2 + (-8)^2}$

$= \sqrt{164}$

$= \sqrt{4}\sqrt{41}$

$\boxed{d = 2\sqrt{41}}$ ⟷ or

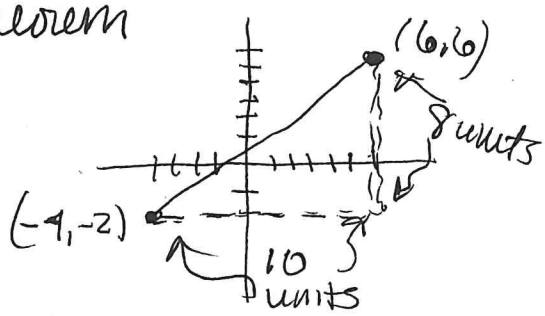
Pythagorean Theorem

$d^2 = 10^2 + 8^2$

$d^2 = 164$

$d = \sqrt{164}$

$\boxed{d = 2\sqrt{41}\ u}$



② (x_1, y_1) (x_2, y_2) $(-8,-7), (-7,-3)$

$d = \sqrt{(-7-(-8))^2 + (-3-(-7))^2}$

$= \sqrt{(1)^2 + (4)^2}$

$\boxed{d = \sqrt{17}\ u}$

③ (x_1, y_1) (x_2, y_2) $(3\sqrt{6}, 0), (\sqrt{6}, -7)$

$d = \sqrt{(\sqrt{6} - 3\sqrt{6})^2 + (-7-0)^2}$

$= \sqrt{(-2\sqrt{6})^2 + (-7)^2}$

$= \sqrt{24 + 49}$

$\boxed{d = \sqrt{73}\ u}$

④ (x_1, y_1) (x_2, y_2) $(3, -5\sqrt{2}), (5, \sqrt{2})$

$d = \sqrt{(\sqrt{2} - (-5\sqrt{2}))^2 + (5-3)^2}$

$= \sqrt{(6\sqrt{2})^2 + (2)^2}$

$= \sqrt{72 + 4}$

$= \sqrt{76}$

$d = \sqrt{4} \cdot \sqrt{19}$

$\boxed{d = 2\sqrt{19}\ u}$

⑤ using pth. Theorem

$d^2 = 2^2 + 4^2$

$d^2 = 4 + 16$

$\sqrt{d^2} = \sqrt{20}$

$\boxed{d = 2\sqrt{5}\ u}$

⑥ It's isos. Therefore,

$\boxed{d = 4\sqrt{2}\ u}$

---

⑦ $4\left(\frac{1}{2}p - \frac{3}{2}p = \frac{9}{4}\right)$

$2p - 6p = 9$

$-4p = 9$

$\boxed{p = -9/4}$

⑧ $8\left(\frac{3}{2}x + \frac{7}{4}x = -\frac{65}{8}\right)$

$12x + 14x = -65$

$26x = -65$

$\boxed{x = -5/2}$

⑨ $6\left(-\frac{7}{2}\left(\frac{5}{2}x - \frac{7}{3}\right) = 49\right)$

$-7\left(\frac{5}{2}x - \frac{7}{3}\right) = 98$

$6\left(\frac{-35}{2}x + \frac{49}{3} = 98\right)$

$-105x + 98 = 588$

$-98 \quad -98$

$-105x = 490$

$\boxed{x = \frac{-14}{3}}$

⑩ $\frac{-11}{3}\left(\frac{5}{2}k + \frac{1}{2}\right) = \frac{-517}{12}$

$12\left(\frac{-55}{6}k - \frac{11}{6} = \frac{-517}{12}\right)$

$-110k - 132 = -517$

$-110k = -385$

$\boxed{k = 9/2}$

Proportions

(11) $\frac{m}{9} = \frac{9}{4}$

$4m = 81$

$m = 81/4$ or 20.25

(12) $\frac{4}{9} = \frac{n}{4}$

$9n = 16$

$n = 16/9$ or ≈ 1.77

(13) $\frac{r-7}{7} = \frac{6}{8}$

$8r - 56 = 42$

$8r = 98$

$r = 49/4$ or 12.25

(14) $\frac{10}{x+10} = \frac{4}{10}$

$4x + 40 = 100$

$4x = 60$

$x = 15$

(15) $\frac{b+6}{9} = \frac{b+7}{12}$

$12b + 72 = 9b + 63$

$3b = -9$

$b = -3$

(16) $\frac{x-10}{11x-4} = \frac{12}{4}$

$4x - 40 = 132x - 48$

$-128x = -8$

$x = 1/16$ or $.06$

Factoring:

(17) $\frac{m^2 - 3m}{m}$

$m(m-3)$

(18) $b^2 + 7b - 8$

$(b+8)(b-1)$

(19) $3k^2 - 14k + 15$

$3k^2 - 9k - 5k + 15$

$3k(k-3) - 5(k-3)$

$(3k-5)(k-3)$

(20) $2r^2 + r - 36$

$2r^2 - 8r + 9r - 36$

$2r(r-4) + 9(r-4)$

$(2r+9)(r-4)$

---

(21) $p^2 + 5p - 14 = 0$

$(p+7)(p-2) = 0$

$p+7=0 \quad p-2=0$

$p = -7; \; p = 2$

Solved by factoring

(22) $2m^2 - 5m - 12 = 0$

$2m^2 - 8m + 3m - 12 = 0$

$(2m+3)(m-4) = 0$

$2m+3=0 \quad m-4=0$

$m = -1.5 \quad m = 4$

(23) $4n^2 - 14 = -10n$

$4n^2 + 10n - 14 = 0$

$2(2n^2 + 5n - 7) = 0$

$2(2n^2 - 2n + 7n - 7) = 0$

$2(2n(n-1) + 7(n-1)) = 0$

$2(2n+7)(n-1) = 0$

$2n+7=0 \quad n-1=0$

$n = -7/2 \quad n = 1$

(24) $4a^2 - a = 5$

$4a^2 - a - 5 = 0$

$4a^2 + 4a - 5a - 5 = 0$

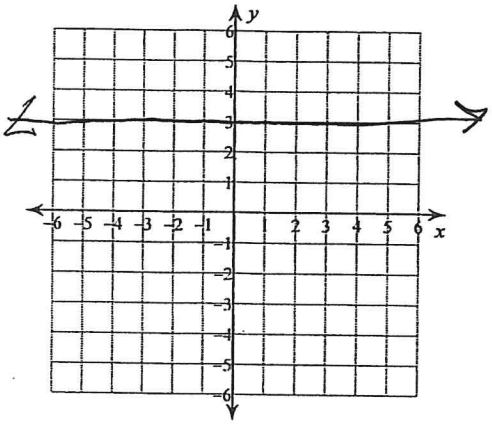
$4a(a+1) - 5(a+1) = 0$

$(4a-5)(a+1) = 0$

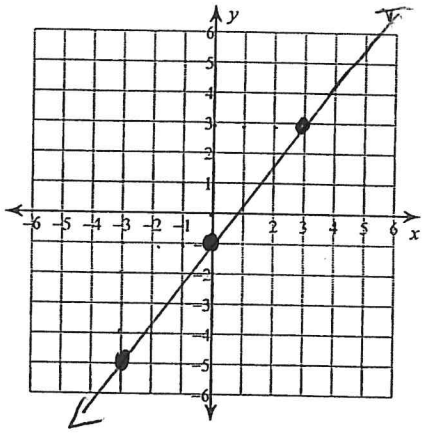
$a = 5/4$ and $a = -1$

Sketch the graph of each line. Be sure to label the y - intercept and one other point.

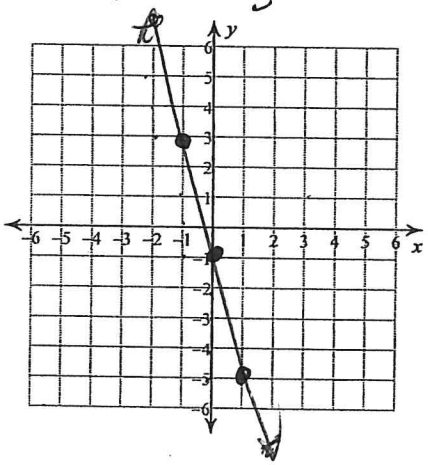
25) $y = 3$



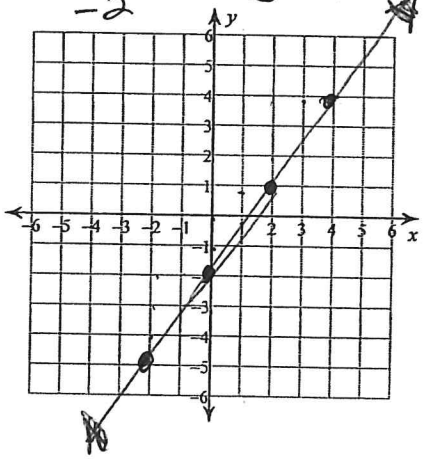
26) $y = \frac{4}{3}x - 1$ $m = 4/3$ $b = (0, -1)$



27) $4x + y = -1$ $y = -4x - 1$ $m = -4$ $b = (0, -1)$

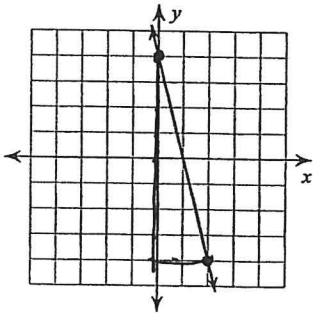


28) $\frac{3x - 2y = 4}{-2}$ $y = \frac{3}{2}x - 2$ $m = 3/2$ $b = (0, -2)$



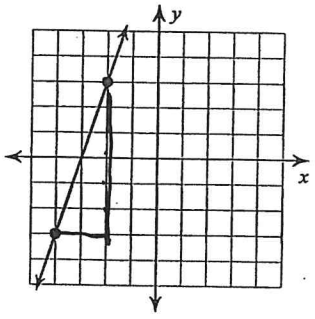
Find the slope of each line.

29)



$\frac{\Delta y}{\Delta x} = \frac{-8}{2} = -4$

30)



$\frac{\Delta y}{\Delta x} = \frac{6}{2} = 3$

Find the slope of the line through each pair of points. Leave your answer as an improper fraction.

31) (13, 19), (–10, 19) $\frac{\Delta y}{\Delta x} = \frac{0}{23} = 0$

32) (9, –2), (–19, 14) $\frac{\Delta y}{\Delta x} = \frac{16}{-28} = -\frac{4}{7}$

(33) $m=-2$ $b=(0,0)$

$\boxed{y=-2x}$

(34) $m=1$ $b=(0,2)$

$\boxed{y=x+2}$

(35) $m=-\frac{2}{3}$ $(4,1)(-2,5)$

$y-1=-\frac{2}{3}(x-4)$

$y-1=-\frac{2}{3}x+\frac{8}{3}$

$\boxed{y=-\frac{2}{3}x+\frac{11}{3}}$

(36) $m=\frac{-3}{1}$ $(-3,1)$

$y-1=-3(x+3)$

$y-1=-3x-9$

$\boxed{y=-3x-8}$

(37) $m=2$ $(-1,-4)$

$y+4=2(x+1)$

$y+4=2x+2$

$\boxed{y=2x-2}$

(38) $m=3/2$ $(2,0)$

$y-0=3/2(x-2)$

$\boxed{y=3/2x-3}$

(39) $(2,-6)$ $(2,-3)$

$m_p=\left(\frac{2+2}{2},\frac{-6+(-3)}{2}\right)$

$m_p=(2,-4.5)$

(40) $(6,-9),(8,-6)$

$m_p=\left(\frac{6+8}{2},\frac{-9+(-6)}{2}\right)$

$m_p=(7,-\frac{15}{2})$

(41) $2\sqrt{2}-2\sqrt{3}-2\sqrt{3}$

$\boxed{2\sqrt{2}-4\sqrt{3}}$

(42) $2\sqrt{2}+2\sqrt{2}-\sqrt{2}$

$4\sqrt{2}-\sqrt{2}$

$\boxed{3\sqrt{2}}$

(43) $-\sqrt{2}-\sqrt{2}-2\sqrt{8}$

$-2\sqrt{2}-2\sqrt{4}\sqrt{2}$

$-2\sqrt{2}-2\cdot 2\sqrt{2}$

$-2\sqrt{2}-4\sqrt{2}$

$\boxed{-6\sqrt{2}}$

(44) $10\sqrt{300}$

$10\sqrt{100}\sqrt{3}$

$10\cdot 10\sqrt{3}$

$\boxed{100\sqrt{3}}$

(45) $-9\sqrt{640}$

$-9\sqrt{64}\sqrt{10}$

$-9\cdot 8\sqrt{10}$

$\boxed{-72\sqrt{10}}$

(46) $-7\sqrt{288}$

$-7\sqrt{144}\sqrt{2}$

$-7\cdot 12\sqrt{2}$

$\boxed{-84\sqrt{2}}$

(47) $-4\sqrt{80}$

$-4\sqrt{16}\sqrt{5}$

$-4\cdot 4\sqrt{5}$

$\boxed{-16\sqrt{5}}$

(48) $\frac{\sqrt{6}}{4\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{\sqrt{18}}{12}=\frac{3\sqrt{2}}{12}=\boxed{\frac{\sqrt{2}}{4}}$

go directly to this?

(49) $\frac{5\sqrt{6}}{\sqrt{2}}=\boxed{5\sqrt{3}}$

(50) $\sqrt{6}\cdot\sqrt{2}$

$\sqrt{12}$

$\sqrt{4}\sqrt{3}$

$\boxed{2\sqrt{3}}$

(51) $\sqrt{15}(\sqrt{5}+4)$

$\sqrt{75}+4\sqrt{15}$

$\sqrt{25}\sqrt{3}+4\sqrt{15}$

$\boxed{5\sqrt{3}+4\sqrt{15}}$

(52) $(\sqrt{2}-4\sqrt{3})(\sqrt{4}+\sqrt{3})$

$(\sqrt{2}-4\sqrt{3})(2+\sqrt{3})$

$\boxed{2\sqrt{2}+\sqrt{6}-8\sqrt{3}-12}$

(53)

Systems of Equations by SUBSTITUTION!!

(53) $y = -2x - 6$
$y = 8x - 6$
$8x - 6 = -2x - 6$
$10x = 0$
$x = 0$
$y = -6$
$(0, -6)$

(54) $y = 7x + 1$
$-x + 8y = 8$
$-x + 8(7x + 1) = 8$
$-x + 56x + 8 = 8$
$x = 0$
$y = 1$
$(0, 1)$

(55) $y = 5x + 24$
$-5x + y = 24$
$5x - 7y = 12$
$5x - 7(5x + 24) = 12$
$5x - 35x - 168 = 12$
$-30x - 168 = 12$
$-30x = 180$
$x = -6$
$y = -6$
$(-6, -6)$

(56) $-8x + 4y = 12$
$-5x + y = -3$
$y = 5x - 3$
$-8x + 4(5x - 3) = 12$
$-8x + 20x - 12 = 12$
$12x = 24$
$x = 2$
$y = 7$
$(2, 7)$

Systems of Equations by Elimination!

(57) $2x - 3y = -19 \rightarrow 2x - 3y = -19$
$-(2x + 6y = 26) \rightsquigarrow -2x - 6y = -26$
$-9y = -45$
$y = 5$
$x = -2$
$(-2, 5)$

(58) $-5x + 2y = -4$
$-(-5x + 2y = -12)$
$2y = 8$
$y = 4$
$x = 4$
$(4, 4)$

(59) $9x + 16y = 11. \rightarrow 9x + 16y = 11$
$-2(2x + 8y = -2.) \rightsquigarrow -4x - 16y = 4$
$5x = 15$
$x = 3$
$y = -1$
$(3, -1)$

(60) $7(3x - 5y = -7) \rightsquigarrow 21x - 35y = -49$
$-3(7x - 9y = -3) \rightsquigarrow -21x + 27y = 9$
$-8y = -40$
$y = 5$
$x = 6$
$(6, 5)$

(61) $(3n^3 - n^2 + 7) + (4n^2 - 4n^4 + 6n^3)$

n^4	n^3	n^2	n	c
0	3	-1	0	7
-4	+6	4	0	0

$\boxed{-4n^4 + 9n^3 + 3n^2 + 7}$

(62) $(6p^4 - p^3 - 3) - (7p^4 + p^2 + 6p^3)$

p^4	p^3	p^2	p	c
6	-1	0	0	-3
-7	-6	-1	0	0

$\boxed{-p^4 - 7p^3 - 1p^2 - 3}$

(63) 3 - it's a Pyth. triple

(64) isos. Δ so $\boxed{5\sqrt{2}}$

(65) $d^2 = 3^2 + 8^2$

$d^2 = 9 + 64$

$d^2 = 73$

$\boxed{d = \sqrt{73}}$

(66) isos Δ

$\boxed{50\sqrt{2}}$

(67) $d^2 = 4^2 + 5^2$

$d^2 = 16 + 25$

$d^2 = 41$

$\boxed{d = \sqrt{41}}$