Welcome to Honors Algebra 2! This summer packet will adequately prepare you to jump right into class at the beginning of the year without taking too much time to review in class. The topics on this packet have already been taught to you in either Algebra 1 or Geometry. It is expected that you finish this packet BEFORE school starts as you will be tested on this material. Some sections of this packet are covered in chapter 1 of your textbook while other topics (such as factoring and square roots) are lightly touched on in the text but further review will be necessary. Video lessons for all topics can be found at various websites like www.khanacademy.org or www.yaymath.org. In order to use Khan Academy, just search the topic and 5-10 videos will appear. If you have any questions or concerns please contact Mrs. Hartmann at mhartmann@iwacademy.org.

The following topics are covered in the summer packet:

Order of operations.

Simplify expressions (search combining like terms in khan academy)

Solve equations

Inequalities

Absolute Value Equations

Factoring /Solving equations by factoring

Graphing

Simplify radicals

We hope you have a safe and fun summer. See you in August.

Sincerely,

The IWA Mathematics Department

Mrs. Shelly Hartmann

Algebra 2A Teacher and Department Chair

mhartmann@iwacademy.org

Honors Algebra 2 Name_____

Summer Packet

Date_____ Period____

ORDER OF OPERATIONS: Evaluate each expression.

1) $-6-(4-6)$

2) $(-3)(-10\div -5)$

3) $-5-(6)(-1)$

4) $5-2-(6-4-3)$

5) $(-2)(4+5+6--5)$

6) $((-4-6)\div(-1-4))(2)$

7) $(-2-5+1)((2)(((-6)(2))\div 4))$

8) $((-1-5)\div(-2-(-6+2)))((-4)(-2))$

9) $(-4+5)((3-(-5\div 5\ -2))(6))$

10) $1-(x)(x-y)$; use $x=4$, and $y=-1$

11) $(p)(n+n-5)$; use $n=6$, and $p=-6$

12) $3+3h-k$; use $h=6$, and $k=1$

13) $-12r\cdot\dfrac{-2+2-q}{q}$; use $q=-\dfrac{3}{2}$, and $r=-\dfrac{5}{2}$

14) $x-2+\dfrac{4y}{5(z-1)}$; use $x=\dfrac{1}{5}$, $y=-\dfrac{13}{4}$, and $z=\dfrac{5}{4}$

15) $y-x-(2+z)+x+x^2$; use $x=-\dfrac{3}{2}$, $y=-\dfrac{3}{2}$, and $z=\dfrac{2}{3}$

16) $\left(\dfrac{13}{4}+\dfrac{2}{3}\right)\left(-\dfrac{5}{3}+\dfrac{7}{4}\right)$

17) $\left(2+2-\dfrac{2}{3}\right)\div\dfrac{3}{4}$

ALGRBRAIC EXPRESSIONS: Simplify each expression.

18) $9p + 9p$

19) $3 - 9x + 5 + 8x$

20) $-5k - k$

21) $8(10r + 7)$

22) $-3(7 + 4m)$

23) $4n(-3n + 7)$

24) $-10b + 3b(8b + 1)$

25) $-8(1 - x) - 7x$

26) $-8n - 4n(1 + 3n)$

27) $-7v(1 + 9v) + 4(10 - 2v)$

28) $9x(x - 7) + 10x(x + 6)$

29) $-7(n - 8) - 7(1 + 9n)$

30) $2p\left(\frac{32}{7}p + \frac{2}{7}\right) - \frac{10}{3}p$

31) $\frac{16}{9}k - \frac{2}{7}k\left(\frac{19}{8}k - \frac{3}{2}\right)$

32) $-\frac{17}{8}a + \frac{47}{9}\left(\frac{1}{10}a + \frac{7}{5}\right)$

EQUATIONS: Solve each equation.

33) $-x - 7x = 8$

34) $-3 = n + 3 - 3$

35) $-10 = m + m$

36) $-7(6n + 8) = -308$

37) $-7 - 3(3 + 7x) = 152$

38) $8(6 + 5r) + 6r = 324$

39) $-3(1 - 3n) + 6 = -3 - 3(-n + 8)$

40) $3(2 - 6x) = -(x - 6)$

41) $b - 8b = 6(8 + 6b) + 5(2b + 1)$

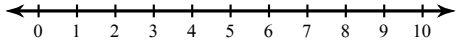
42) $-5(v + 3) = -2(1 - 7v) + 6$

43) $4 + 4(k - 3) = 2 - 2(-2 - 3k)$

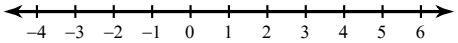
44) $6(3a - 4) - 2 = 8(8 + 3a)$

INEQUALITIES: Solve each inequality and graph its solution.

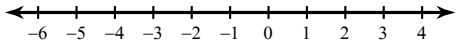
45) $k - 4 + 8 \leq 11$



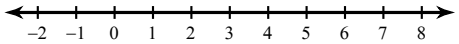
46) $-7x + 4x < -6$



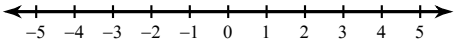
47) $-2n + 3n \geq -2$



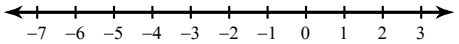
48) $2p - 3p \leq -1$



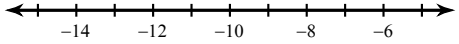
49) $5(n - 2) \leq -n - 10$



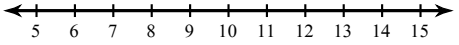
50) $4(5m + 2) > 3m + 25$



51) $2(1 - x) > -40 - 8x$



52) $2(4 - 5r) \geq -34 - 4r$



Solve each equation.

53) $|x| = 6$

54) $|x| = 1$

55) $|5 + n| = 1$

56) $|k + 2| = 1$

57) $|7x - 4| = 18$

58) $|6 - 3p| = 12$

59) $|-10 + 9n| - 5 = 50$

60) $|-7 + 9m| - 2 = 32$

61) $8|10r + 9| - 5 = 3$

62) $-9 + 2|2x + 8| = 7$

Factor each completely.

63) $x^2 - 3x - 28$

64) $v^3 - 2v^2 - 24v$

65) $5p^4 - 15p^3 - 20p^2$

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

67) $2k^3 + 11k^2 + 14k$

68) $5a^3 - 4a^2$

69) $3x^2 - 7x$

70) $35n^2 - 85n + 50$

71) $9x^2 + x - 8$

72) $10k^3 + 67k^2 + 42k$

73) $10k^2 + 51k + 27$

74) $8k^2 + 18k - 18$

Solve each equation by factoring.

75) $(n-8)(7n+5)=0$

76) $4(b+1)(b+4)=0$

77) $x(6x+1)=0$

78) $n^2+6n-16=0$

79) $7v^2-7v-392=0$

80) $7x^2+70x+168=0$

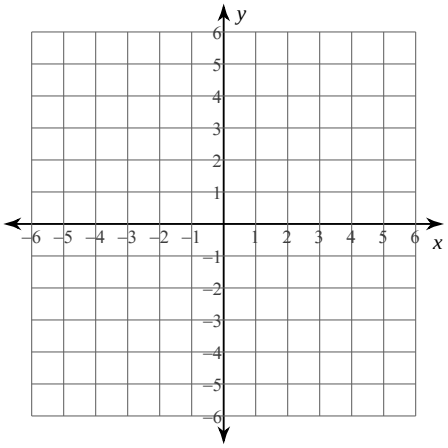
81) $4k^2-21k=18$

82) $12a^2+28a=0$

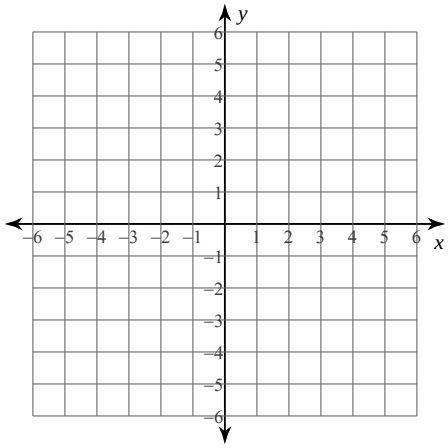
83) $5x^2+31x=28$

GRAPHING LINES: Sketch the graph of each line.

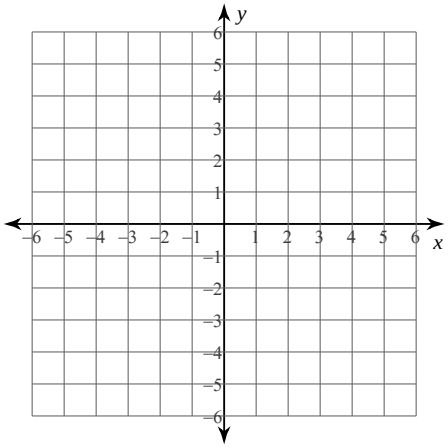
84) $y = -\frac{6}{5}x - 3$



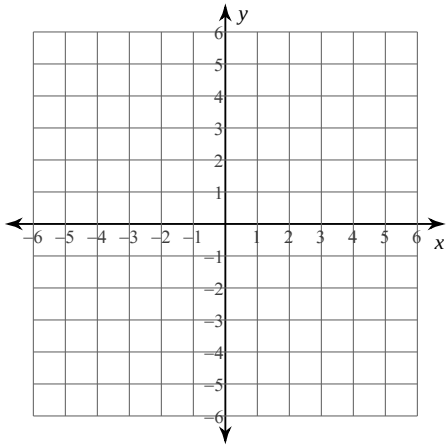
85) $y = -\frac{1}{2}x - 5$



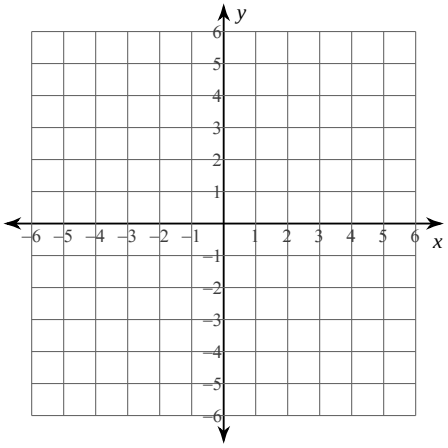
86) $y = \frac{5}{3}x - 1$



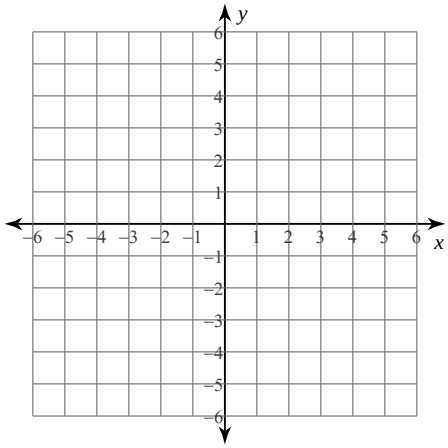
87) $y = \frac{2}{5}x + 3$



88) $y = -\frac{9}{2}x + 4$



89) $y = -4x + 1$



Simplify.

90) $5\sqrt{200}$

91) $-8\sqrt{343}$

92) $8\sqrt{128}$

93) $6\sqrt{512}$

94) $8\sqrt{147}$

95) $-6\sqrt{18x^2y}$

96) $7\sqrt{180m^3n^2}$

97) $7\sqrt{245x^2yz}$

98) $\frac{5\sqrt{4}}{\sqrt{16}}$

99) $\frac{4\sqrt{16}}{5\sqrt{25}}$

100) $\frac{2\sqrt{2}}{\sqrt{5}}$

101) $\frac{5\sqrt{3}}{4\sqrt{2}}$

102) $\frac{4\sqrt{5}}{2\sqrt{2}}$

103) $\frac{4\sqrt{5}}{3\sqrt{3}}$

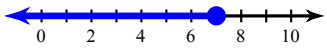
104) $\frac{\sqrt{5m^2}}{2\sqrt{2m^2}}$

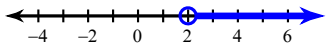
105) $\frac{4\sqrt{3x^4y^4}}{\sqrt{2x^3y^3}}$

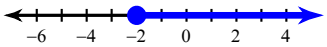
106) $\frac{5\sqrt{5k}}{\sqrt{3k^2}}$

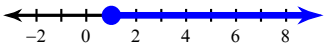
107) $\frac{\sqrt{9p^2}}{\sqrt{15p^3}}$

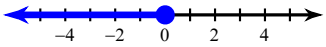
Answers to Summer Packet (ID: 1)

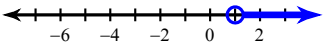
1) -4
2) -6
3) 1
4) 4
5) -40
6) 4
7) 36
8) -24
9) 36
10) -19
11) -42
12) 20
13) -30
14) $-\frac{61}{5}$
15) $-\frac{23}{12}$
16) $\frac{47}{144}$
17) $\frac{40}{9}$
18) $18p$
19) $8 - x$
20) $-6k$
21) $80r + 56$
22) $-21 - 12m$
23) $-12n^2 + 28n$
24) $-7b + 24b^2$
25) $-8 + x$
26) $-12n - 12n^2$
27) $-15v - 63v^2 + 40$
28) $19x^2 - 3x$
29) $-70n + 49$
30) $\frac{64}{7}p^2 - \frac{58}{21}p$
31) $\frac{139}{63}k - \frac{19}{28}k^2$
32) $-\frac{577}{360}a + \frac{329}{45}$
33) $\{-1\}$
34) $\{-3\}$
35) $\{-5\}$
36) $\{6\}$
37) $\{-8\}$
38) $\{6\}$
39) $\{-5\}$
40) $\{0\}$
41) $\{-1\}$
42) $\{-1\}$
43) $\{-7\}$
44) $\{-15\}$
45) $k \le 7$:


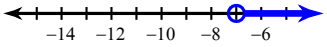
46) $x > 2$:


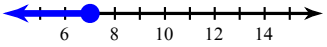
47) $n \ge -2$:


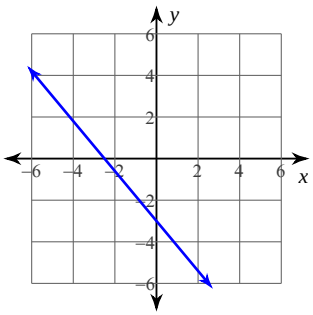
48) $p \ge 1$:


49) $n \le 0$:


50) $m > 1$:


51) $x > -7$:


52) $r \le 7$:


53) $\{6, -6\}$
54) $\{1, -1\}$
55) $\{-4, -6\}$
56) $\{-1, -3\}$
57) $\left\{\frac{22}{7}, -2\right\}$
58) $\{-2, 6\}$
59) $\left\{\frac{65}{9}, -5\right\}$
60) $\left\{\frac{41}{9}, -3\right\}$
61) $\left\{-\frac{4}{5}, -1\right\}$
62) $\{0, -8\}$
63) $(x + 4)(x - 7)$
64) $v(v - 6)(v + 4)$
65) $5p^2(p + 1)(p - 4)$
66) $(b - 2)(b + 9)$
67) $k(2k + 7)(k + 2)$
68) $a^2(5a - 4)$
69) $x(3x - 7)$
70) $5(7n - 10)(n - 1)$
71) $(x + 1)(9x - 8)$
72) $k(k + 6)(10k + 7)$
73) $(2k + 9)(5k + 3)$
74) $2(k + 3)(4k - 3)$
75) $\left\{8, -\frac{5}{7}\right\}$
76) $\{-1, -4\}$
77) $\left\{-\frac{1}{6}, 0\right\}$
78) $\{-8, 2\}$
79) $\{8, -7\}$
80) $\{-4, -6\}$
81) $\left\{-\frac{3}{4}, 6\right\}$
82) $\left\{-\frac{7}{3}, 0\right\}$
83) $\left\{\frac{4}{5}, -7\right\}$
84)


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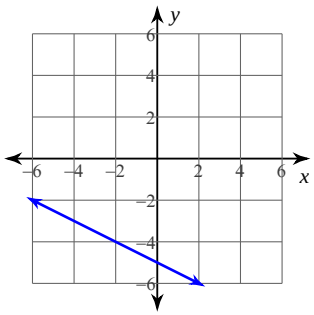

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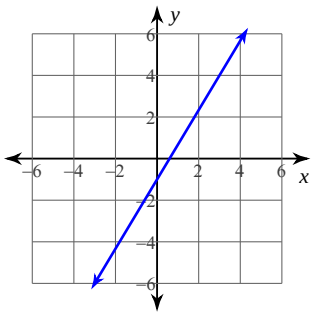

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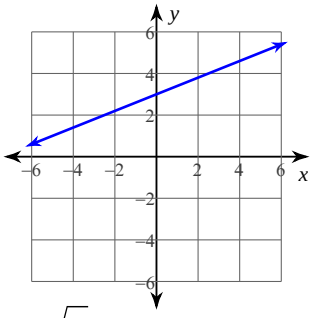

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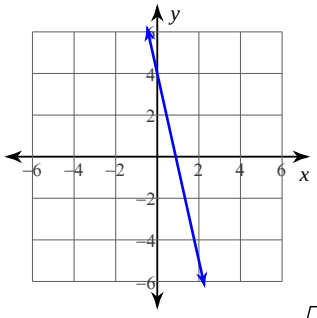

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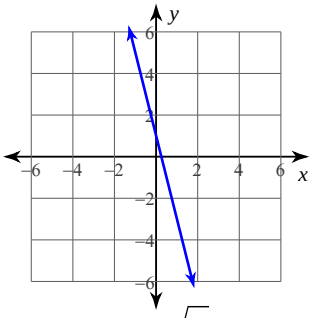

90) $50\sqrt{2}$

91) $-56\sqrt{7}$

92) $64\sqrt{2}$

93) $96\sqrt{2}$

94) $56\sqrt{3}$

95) $-18x\sqrt{2y}$

96) $42mn\sqrt{5m}$

97) $49x\sqrt{5yz}$

98) $\frac{5}{2}$

99) $\frac{16}{25}$

100) $\frac{2\sqrt{10}}{5}$

101) $\frac{5\sqrt{6}}{8}$

102) $\sqrt{10}$

103) $\frac{4\sqrt{15}}{9}$

104) $\frac{\sqrt{10}}{4}$

105) $2\sqrt{6xy}$

106) $\frac{5\sqrt{15k}}{3k}$

107) $\frac{\sqrt{15p}}{5p}$