Welcome to Geometry Honors
Incoming Students: Essential Practice

EXPECTATIONS:

Proficiency with the algebraic concepts listed below is essential to your success in Geometry Honors.

You are expected to be able to apply these concepts **without the use of a calculator**. Although we will review these concepts as they pop up within the Geometry curriculum, the pacing and rigor of the course does not allow for a full Algebra lesson.

You will begin applying many of these algebraic concepts as soon as Chapter 1.

PREREQUISITE KNOWLEDGE:

Do I know how to…?

- Add, Subtract, Multiply & Divide Fractions
- Combine Like Terms (CLT)
- Use the Distributive Property
- Solve Linear Equations – Multi-Step including CLT, Distributive Property and Fractions
- Solve Systems of Linear Equations using Substitution and Elimination
- Simplify Square Roots – No Decimals!
- FOIL Two Binomials
- Factor with a GCF; Factor using a Difference of Squares;
  Factor a Quadratic Trinomial (without grouping)
- Graph a Linear Equation (including horizontal and vertical lines)
- Write Equations for Lines (including horizontal and vertical lines)

Attached you will find exercises to help you practice the concepts listed above. Remember - You should be able to complete the exercises without a calculator.

Khan Academy is a great resource should you need any help. https://www.khanacademy.org/

Please bring these completed exercises with you when you return to school in August.

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Adding and Subtracting Fractions

1. $\frac{20}{7}+\frac{13}{6}$

2. $\frac{18}{7}-\frac{1}{4}$

3. $\frac{6}{5}+\frac{1}{3}$

4. $\frac{13}{9}+\frac{9}{4}$

5. $\frac{17}{12}-\frac{3}{8}$

6. $\frac{2}{3}-\frac{3}{5}$

7. $\frac{16}{3}+\frac{13}{9}$

8. $\frac{3}{8}+\frac{9}{5}$

9. $\frac{1}{2}+\frac{8}{11}$

10. $\frac{5}{2}-\frac{23}{10}$

Multiplying and Dividing Fractions

1. $\frac{1}{9}\div\frac{3}{11}$

2. $\frac{22}{9}\bullet\frac{6}{11}$

3. $\frac{14}{11}\div\frac{3}{7}$

4. $\frac{12}{5}\div\frac{3}{2}$

5. $\frac{4}{5}\bullet\frac{9}{8}$

6. $\frac{19}{5}\div\frac{19}{8}$

7. $\frac{7}{4}\bullet\frac{9}{4}$

8. $\frac{1}{2}\div\frac{24}{5}$

9. $\frac{11}{2}\bullet\frac{2}{7}$

10. $\frac{10}{25}\bullet\frac{2}{5}$

Answer Key

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Adding and Subtracting Fractions

1. $\frac{20}{7}+\frac{13}{6}$ $\frac{211}{42}$

2. $\frac{18}{7}-\frac{1}{4}$ $\frac{65}{28}$

3. $\frac{6}{5}+\frac{1}{3}$ $\frac{23}{15}$

4. $\frac{13}{9}+\frac{9}{4}$ $\frac{133}{36}$

5. $\frac{17}{12}-\frac{3}{8}$ $\frac{25}{24}$

6. $\frac{2}{3}-\frac{3}{5}$ $\frac{1}{15}$

7. $\frac{16}{3}+\frac{13}{9}$ $\frac{61}{9}$

8. $\frac{3}{8}+\frac{9}{5}$ $\frac{87}{40}$

9. $\frac{1}{2}+\frac{8}{11}$ $\frac{27}{22}$

10. $\frac{5}{2}-\frac{23}{10}$ $\frac{1}{5}$

Multiplying and Dividing Fractions

1. $\frac{1}{9}\div\frac{3}{11}$ $\frac{11}{27}$

2. $\frac{22}{9}\bullet\frac{6}{11}$ $\frac{4}{3}$

3. $\frac{14}{11}\div\frac{3}{7}$ $\frac{98}{33}$

4. $\frac{12}{5}\div\frac{3}{2}$ $\frac{8}{5}$

5. $\frac{4}{5}\bullet\frac{9}{8}$ $\frac{9}{10}$

6. $\frac{19}{5}\div\frac{19}{8}$ $\frac{8}{5}$

7. $\frac{7}{4}\bullet\frac{9}{4}$ $\frac{63}{16}$

8. $\frac{1}{2}\div\frac{24}{5}$ $\frac{5}{48}$

9. $\frac{11}{2}\bullet\frac{2}{7}$ $\frac{11}{7}$

10. $\frac{10}{25}\bullet\frac{2}{5}$ $\frac{4}{25}$

Welcome to Geometry Honors

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Combine Like Terms and Distributive Property. Simplify each expression.

1) $b - 10 - 8 + 6b$

2) $-5n - 8 + 2 - 3n$

3) $-7(6 - m)$

4) $8(1 + 10p)$

5) $-9(k + 8) - 5k$

6) $3 - 8(8 - x)$

7) $-2x + 8(3x + 3)$

8) $6 + 2(-8b + 3)$

9) $-8m - 3(-10m + 10)$

10) $-2n - 9(1 - 9n)$

Solve each equation. Leave your answer as a fraction where necessary.

11) $-7 + k = -9$

12) $-32 = a - 13$

13) $-\frac{4}{11} = \frac{2}{11}p$

14) $-\frac{3}{13} - x = \frac{7}{26}$

15) $2 - 2m = 1 - 3m - 7$

16) $7n + 7n = n - 7 + 2n - 15$

17) $-1 + \frac{1}{3}x = x - \frac{1}{3}$

18) $-\frac{2}{5}x + 1 = -\frac{67}{60} + x + \frac{7}{6} + \frac{1}{2}x$

19) $-230 = -6(5 - 3n) + 7n$

20) $7(5 + 2x) = 133$

21) $-\frac{5}{3}\left(-8x + \frac{8}{5}\right) = 84$

22) $\frac{9}{2}\left(\frac{7}{2}x + 1\right) = -90$

23) $-8(k - 4) - 6(k - 6) = -16$

24) $36 = -(8n - 8) + 2(5n + 7)$

25) $\frac{9}{2}\left(\frac{3}{7}a-1\right)-\left(\frac{9}{2}a+\frac{5}{4}\right)=-\frac{4}{7}a-2a$

26) $-\left(\frac{1}{2}x-\frac{4}{5}\right)=-\frac{9}{5}\left(x-\frac{8}{3}\right)$

Solve each proportion. Leave your answer as a fraction where necessary.

27) $\frac{4}{7}=\frac{6}{x}$

28) $\frac{7}{2}=\frac{k}{4}$

29) $\frac{2}{p-9}=\frac{10}{5}$

30) $\frac{6}{5}=\frac{x+8}{7}$

31) $\frac{6}{3}=\frac{k-10}{10}$

32) $\frac{9}{10}=\frac{x+2}{6}$

33) $\frac{2}{6}=\frac{b-10}{b}$

34) $\frac{7}{a-3}=\frac{6}{a}$

35) $\frac{8}{k+3}=\frac{2}{k-4}$

36) $\frac{10}{x+7}=\frac{6}{x+8}$

Solve each system by substitution.

37) $y=-6x-15$
$y=8x+13$

38) $y=-6x-9$
$y=7x+4$

39) $y=-6x+3$
$-2x-4y=-12$

40) $y=-3x-5$
$-5x+7y=17$

41) $x+7y=9$
$-7x-6y=-20$

42) $5x+y=6$
$-8x-4y=-24$

43) $-2x+8y=24$
$-6x-7y=-21$

44) $-7x+3y=17$
$-4x+2y=8$

Solve each system by elimination.

45) $-2x-2y=2$
$-x+2y=25$

46) $-5x-6y=-6$
$5x+4y=-6$

47) $8x + 6y = -26$
$-x + 6y = 10$

48) $8x + 3y = 1$
$9x + 3y = 0$

49) $6x - 5y = 25$
$-x + 2y = -10$

50) $2x - 2y = -30$
$-5x - 6y = 20$

51) $-10x + 3y = -30$
$-4x - 4y = -12$

52) $6x + 8y = 18$
$-7x + 10y = -21$

Simplify. No Decimals.

53) $\sqrt{80}$

54) $\sqrt{72}$

55) $\sqrt{32}$

56) $\sqrt{24}$

57) $\sqrt{27}$

58) $\sqrt{98}$

59) $7\sqrt{112}$

60) $-8\sqrt{128}$

61) $-5\sqrt{45}$

62) $-4\sqrt{150}$

Find each product by FOILing.

63) $(k-5)(2k+7)$

64) $(6n-7)(n+1)$

65) $(7x-1)(7x-7)$

66) $(3n+4)(2n+6)$

Factor each expression using the GCF.

67) $6b + 6$

68) $6x^3 - 27x^2$

69) $10n^5 + 60n^3$

70) $5n^3 - 10n$

Factor each completely without using grouping.

71) $v^2 - 64$

72) $r^2 - 16$

73) $4n^2 - 25$

74) $9p^2 - 100$

75) $n^2 + 9n + 18$

76) $p^2 - 9p + 20$

77) $x^2 + 9x - 10$

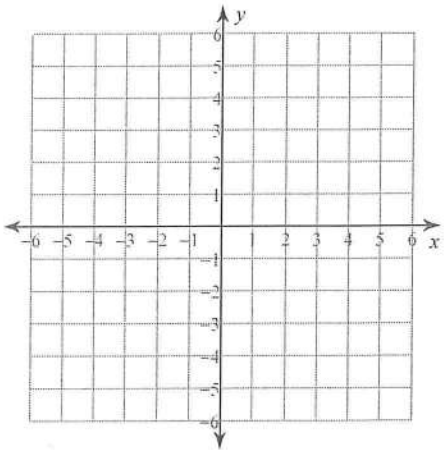
78) $n^2 + 3n - 28$

79) $b^2 - 2b - 8$

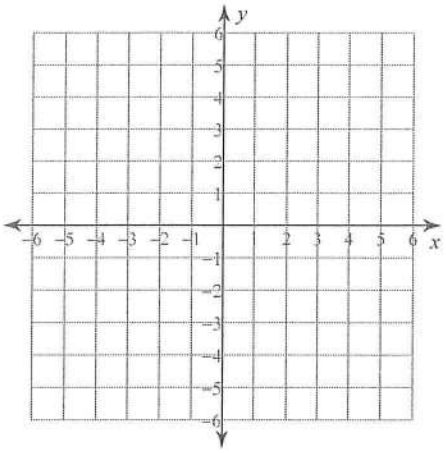
80) $x^2 + x - 72$

Sketch the graph of each line.

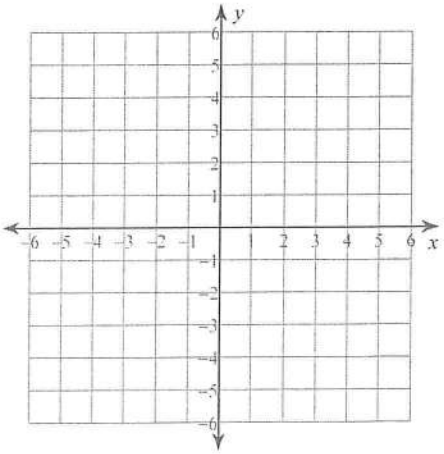
81) $y = -\frac{5}{4}x + 5$



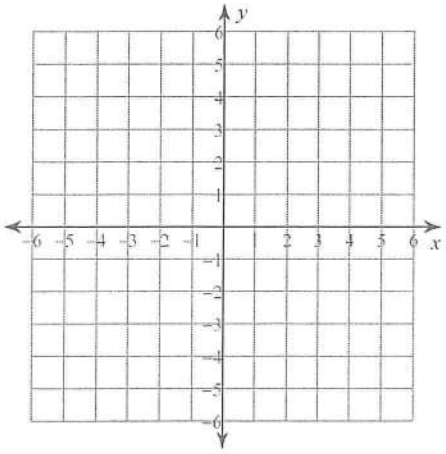
82) $y = \frac{7}{5}x + 4$



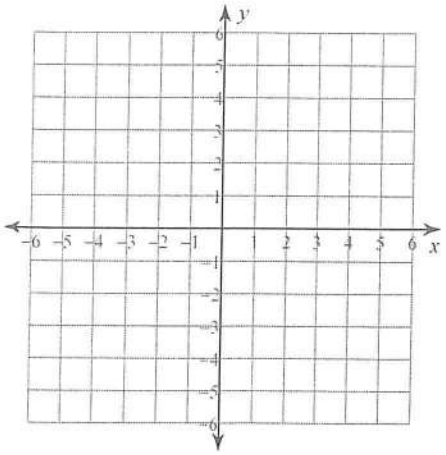
83) $y = 7x + 5$



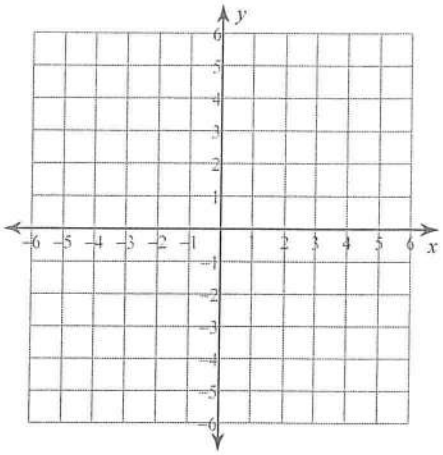
84) $y = -5x + 3$



85) $y = 5$

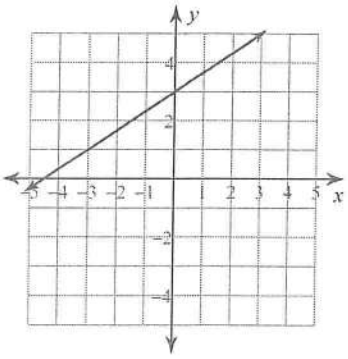


86) $x = -4$

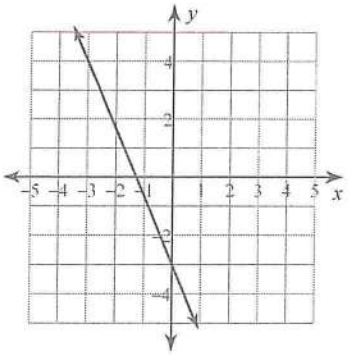


Write the slope-intercept form of the equation of each line.

87)



88)



89) Slope $= \frac{7}{2}$, y-intercept $= -4$

90) Slope $= -1$, y-intercept $= -4$

91) through: $(-3, 2)$, slope $= -7$

92) through: $(-2, -1)$, slope $= \frac{5}{2}$

93) through: $(4, 2)$ and $(-1, -1)$

94) through: $(-2, 1)$ and $(-3, 4)$

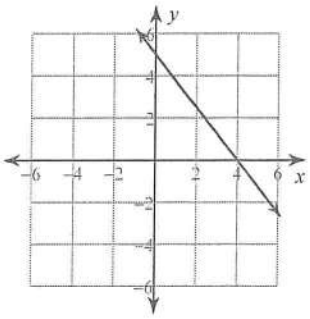
95) through: $(-5, 3)$ and $(2, 3)$

96) through: $(-2, -5)$ and $(-2, 4)$

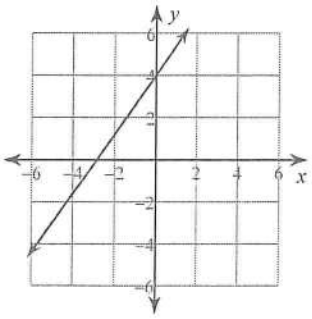
Answers to Incoming Students: Essential Practice

1) $7b - 18$
2) $-8n - 6$
3) $-42 + 7m$
4) $8 + 80p$
5) $-14k - 72$
6) $-61 + 8x$
7) $22x + 24$
8) $12 - 16b$
9) $22m - 30$
10) $79n - 9$
11) $\{-2\}$
12) $\{-19\}$
13) $\{-2\}$
14) $\left\{-\frac{1}{2}\right\}$
15) $\{-8\}$
16) $\{-2\}$
17) $\{-1\}$
18) $\left\{\frac{1}{2}\right\}$
19) $\{-8\}$
20) $\{7\}$
21) $\left\{\frac{13}{2}\right\}$
22) $\{-6\}$
23) $\{6\}$
24) $\{7\}$
25) No solution.
26) $\left\{\frac{40}{13}\right\}$
27) $\{10.5\}$
28) $\{14\}$
29) $\{10\}$
30) $\{0.4\}$
31) $\{30\}$
32) $\{3.4\}$
33) $\{15\}$
34) $\{-18\}$
35) $\{6.33\}$
36) $\{-9.5\}$
37) $(-2, -3)$
38) $(-1, -3)$
39) $(0, 3)$
40) $(-2, 1)$
41) $(2, 1)$
42) $(0, 6)$
43) $(0, 3)$
44) $(-5, -6)$
45) $(-9, 8)$
46) $(-6, 6)$
47) $(-4, 1)$
48) $(-1, 3)$
49) $(0, -5)$
50) $(-10, 5)$
51) $(3, 0)$
52) $(3, 0)$
53) $4\sqrt{5}$
54) $6\sqrt{2}$
55) $4\sqrt{2}$
56) $2\sqrt{6}$
57) $3\sqrt{3}$
58) $7\sqrt{2}$
59) $28\sqrt{7}$
60) $-64\sqrt{2}$
61) $-15\sqrt{5}$
62) $-20\sqrt{6}$
63) $2k^2 - 3k - 35$
64) $6n^2 - n - 7$
65) $49x^2 - 56x + 7$
66) $6n^2 + 26n + 24$
67) $6(b + 1)$
68) $3x^2(2x - 9)$
69) $10n^3(n^2 + 6)$
70) $5n(n^2 - 2)$
71) $(v - 8)(v + 8)$
72) $(r + 4)(r - 4)$
73) $(2n - 5)(2n + 5)$
74) $(3p + 10)(3p - 10)$
75) $(n + 6)(n + 3)$
76) $(p - 4)(p - 5)$
77) $(x + 10)(x - 1)$
78) $(n + 7)(n - 4)$
79) $(b - 4)(b + 2)$
80) $(x - 8)(x + 9)$

81)



82)



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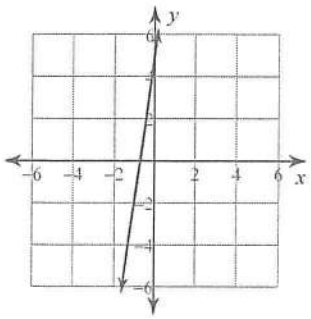

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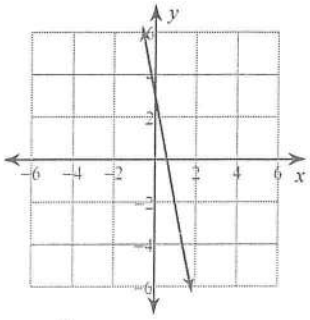

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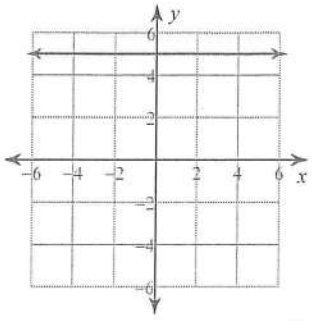

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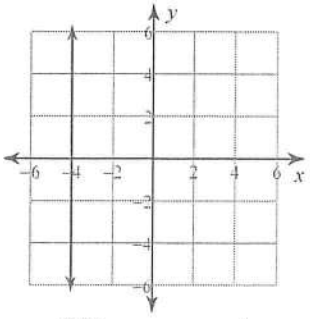

87) $y = \frac{2}{3}x + 3$
88) $y = -\frac{7}{3}x - 3$
89) $y = \frac{7}{2}x - 4$
90) $y = -x - 4$
91) $y = -7x - 19$
92) $y = \frac{5}{2}x + 4$
93) $y = \frac{3}{5}x - \frac{2}{5}$
94) $y = -3x - 5$
95) $y = 3$
96) $x = -2$