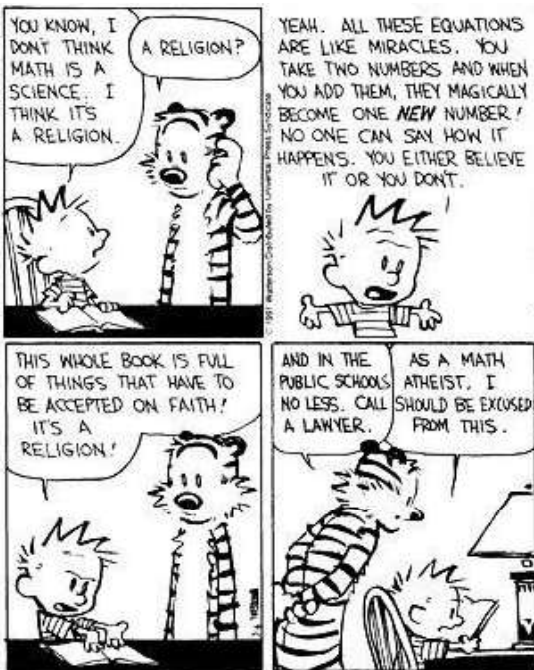




“Entering Algebra 1” Summer Math Packet

These exercises provide a thorough review of Pre-Algebra topics in preparation for starting Algebra 1 at Liberty Common Junior High School. This problem set should be completed and brought to class on the first full day of school for credit as the first homework assignment of the school year. **Work all problems on a separate sheet of paper and circle your answers. DO NOT WRITE ON THIS PACKET!** Answers are provided in the back so that you can check your work; you need to show your work to receive credit for the problem.



As you work through these problems, you most likely will come across topics that require a little review... you might even find some topics that you have completely forgotten! When this situation presents itself, get help. There are many resources available – websites, textbooks, friends or siblings who are ahead of you in math, previous courses’ notes, etc. – that can provide information to assist you.

Have a great summer; see you in August!

Show all work and answers on separate paper

Name _____

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Entering Algebra 1 - No Calculators Allowed

Evaluate each expression.

1) $\frac{25}{13} + 17\frac{25}{32}$

2) $\frac{10}{11} + 23\frac{5}{24}$

3) $13\frac{37}{39} + \frac{32}{19}$

4) $\frac{5}{4} + 7\frac{13}{28}$

5) $\frac{7}{6} + 3\frac{5}{8}$

6) $15\frac{29}{30} + 18\frac{13}{32}$

7) $2\frac{13}{30} - \frac{64}{41}$

8) $23\frac{18}{29} - \frac{3}{8}$

Find each product.

9) $3\frac{1}{3} \times \frac{10}{7}$

10) $2\frac{1}{2} \times \frac{5}{8}$

11) $5\frac{4}{7} \times \frac{9}{10}$

12) $1\frac{1}{4} \times \frac{1}{2}$

13) $3\frac{2}{7} \times \frac{1}{10}$

14) $\frac{2}{5} \times \frac{11}{10}$

Find each quotient.

15) $\frac{12}{7} \div 1\frac{1}{13}$

16) $\frac{4}{3} \div 4\frac{7}{8}$

17) $4\frac{1}{10} \div \frac{3}{2}$

18) $\frac{2}{3} \div \frac{12}{7}$

19) $\frac{6}{5} \div 3\frac{5}{12}$

20) $5\frac{3}{4} \div \frac{4}{9}$

Solve each equation.

21) $-10n = 10$

22) $n - 6 = -12$

23) $n + 10 = 5$

24) $-4b = 32$

25) $k - 5 = -12$

26) $x + 10 = 19$

Solve each proportion.

27) $\frac{4}{x} = \frac{3}{9}$

28) $\frac{6}{10} = \frac{x}{2}$

29) $\frac{k}{9} = \frac{3}{2}$

30) $\frac{9}{8} = \frac{v}{10}$

31) $\frac{2}{7} = \frac{8}{v}$

32) $\frac{n}{10} = \frac{5}{8}$

Solve each equation.

33) $-7 - 7x = 35$

34) $1 + 6b = 115$

35) $54 = -3k - 6$

36) $\frac{r}{10} - 5 = -6$

37) $7 = \frac{x}{1} + 7$

38) $68 = -2 + 5n$

39) $-1 + 4v = -65$

40) $18 = 9 - 3x$

41) $-3 = \frac{n}{-4} - 8$

42) $-130 = -8x + 6$

Draw a number-line graph for each inequality.

43) $p \geq 4$

44) $k > -1$

45) $x < -2$

46) $x \leq 6$

Solve each inequality and graph its solution on a number line.

47) $-1 + \frac{m}{3} < 2$

48) $-4 - 2n < -28$

49) $-4x + 9 \leq 45$

50) $-3 - 6p > -69$

Simplify each expression.

51) $5x + 8x$

52) $2k - 5k$

53) $8 + x + 1 + 10x$

54) $3x - 3x$

55) $-5k + 9 - 9 - 8k$

56) $6 + p - 2$

57) $4(4b + 2) + 2b(b - 4)$

58) $6a(3a - 8) - 3a(a + 6)$

59) $-8x(5x + 2) - 3(2 + 6x)$

60) $7x(-x + 5) + 4(6x - 2)$

61) $7(1 + 4x) - 4(6x + 1)$

62) $-3(8n - 3) - 4n(8n - 1)$

Write the prime-power factorization of each.

63) 318

64) 260

65) 329

66) 330

67) 357

68) 387

Evaluate each expression.

69) $5 + (6)(4) + 1 - (6 - 1)$

70) $4 + 3 - 1 + 1 + 5^2$

71) $(5)(5) - 3^2 - (5 + 6)$

72) $(5 - 3)(4^2) + 2 + 4$

73) $2 \div (4 - (2 - 1 + 2 - 1))$

74) $(15 - 3) \div 6 + ((2)(3))(4)$

75) $3^2 \div (4 - (4 - 3))$

76) $5 + (6)(2^2 - (6 - 4))$

77) $(17 - (4 + 2 + 2 - 3)) \div 2$

78) $4 - (3 - 2) + 5 - 12 \div 6$

Evaluate each using the values given.

79) $(m)(n - (6 + m))$; use $m = 6$, and $n = 4$

80) $(x)(x - (x + y))$; use $x = -4$, and $y = -2$

81) $b^2 - (a + a)$; use $a = 2$, and $b = -5$

82) $2p - (m + m)$; use $m = -2$, and $p = 3$

83) $|3 + m| + n$; use $m = 2$, and $n = 5$

84) $(a)(a + b - b)$; use $a = 2$, and $b = -5$

Use simple interest to find the ending balance.

85) \$5,000 at 11% for 9 years

86) \$390 at 1% for 2 years

87) \$1,050 at 6% for 2 years

88) \$490 at 1% for 8 years

Draw a box-and-whisker plot for each data set.

89) Test Scores

40	41	42	43	45	46	50
51	52	52	54	56	56	56
56	56					

90) Annual Precipitation (Centimeters)

41	43	45	56	59	82
82	84	103	136	137	143
143	146	152	152	160	

91) Minutes to Run 5km

25.6	28.8	29.9	29.9	30.4
32.7	32.9	33	33	34.1
34.5	35	35.9	37.6	42.5
45.4				

92) Age at First Job

13	13	15	15	16	16	17
17	17	17	18	18	20	21
22						

Write each as a decimal. Round to the thousandths place.

93) 29%

94) 0.9%

95) 5%

96) 14.8%

97) 695%

98) 60%

Write each as a percent. Round to the nearest tenth of a percent.

99) $\frac{3}{25}$

100) $\frac{1}{8}$

101) $2\frac{7}{10}$

102) $8\frac{1}{2}$

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

104) $6\frac{1}{10}$

105) $\frac{73}{100}$

106) $\frac{1}{220}$

Find the selling price of each item.

107) Original price of a computer: \$3,800.00
Discount: 49%

108) Original price of a purse: \$44.95
Discount: 20%

109) Original price of a cell phone: \$149.95
Discount: 30%

110) Original price of a cell phone: \$114.95
Discount: 30%

111) Original price of a pen: \$2.50
Discount: 44%

112) Original price of a truck: \$38,000.00
Discount: 20%

Find each percent change. Round to the nearest tenth of a percent. State if it is an increase or decrease.

113) From 49 to 63

114) From 96 to 25

115) From 94 to 9

116) From 100 to 12

117) From 87 to 46

118) From 35 to 55

Solve each problem.

119) 86% of what is 120?

120) 26% of what is 4.2?

121) What percent of 81 is 59?

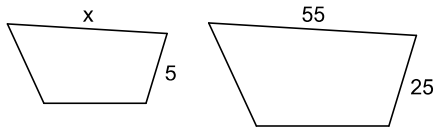
122) 73 is 390% of what?

123) 24% of what is 144?

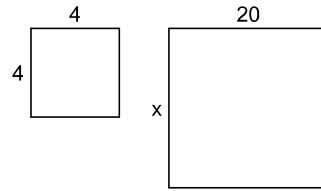
124) 115% of what is 21?

Each pair of figures is similar. Find the missing side.

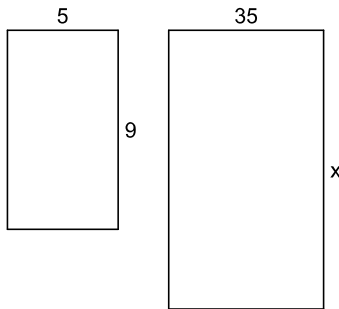
125)



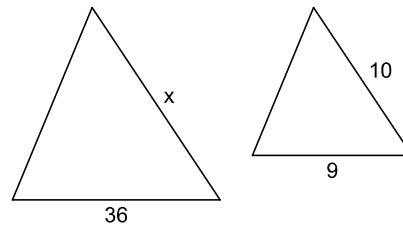
126)



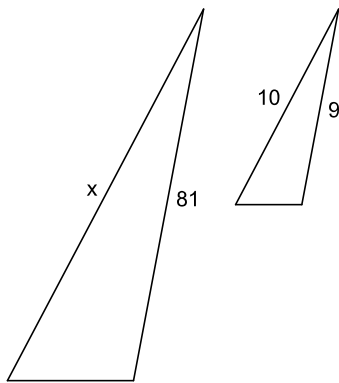
127)



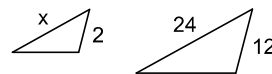
128)



129)

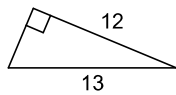


130)

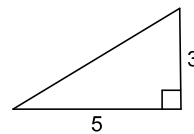


Find each missing length to the nearest tenth (it's okay to use a calculator here).

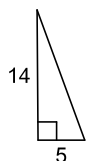
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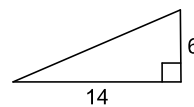
132)



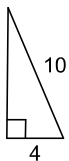
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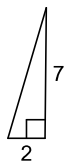
134)



135)



136)

**Find each square root.**

137) $\sqrt{25}$

138) $\sqrt{81}$

139) $\sqrt{144}$

140) $\sqrt{121}$

Estimate each square root (calculators allowed). Round to the nearest tenth.

141) $\sqrt{84}$

142) $\sqrt{67}$

143) $\sqrt{45}$

144) $\sqrt{33}$

Sketch the graph of each line on an x-y coordinate system.

145) $y = 4x + 1$

146) $y = -3x + 1$

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

148) $y = \frac{5}{4}x + 1$

149) $y = -\frac{2}{5}x + 5$

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

Answers to Entering Algebra 1 - No Calculators Allowed

1) $19\frac{293}{416}$

2) $24\frac{31}{264}$

3) $15\frac{469}{741}$

4) $8\frac{5}{7}$

5) $4\frac{19}{24}$

6) $34\frac{179}{480}$

7) $\frac{1073}{1230}$

8) $23\frac{57}{232}$

9) $4\frac{16}{21}$

10) $1\frac{9}{16}$

11) $5\frac{1}{70}$

12) $\frac{5}{8}$

13) $\frac{23}{70}$

14) $\frac{11}{25}$

15) $1\frac{29}{49}$

16) $\frac{32}{117}$

17) $2\frac{11}{15}$

18) $\frac{7}{18}$

19) $\frac{72}{205}$

20) $12\frac{15}{16}$

21) $\{-1\}$

22) $\{-6\}$

23) $\{-5\}$

24) $\{-8\}$

25) $\{-7\}$

26) $\{9\}$

27) $\{12\}$

28) $\{1.2\}$

29) $\{13.5\}$

30) $\{11.25\}$

31) $\{28\}$

32) $\{6.25\}$

33) $\{-6\}$

34) $\{19\}$

35) $\{-20\}$

36) $\{-10\}$

37) $\{0\}$

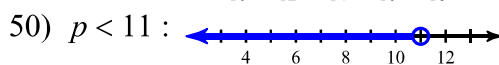
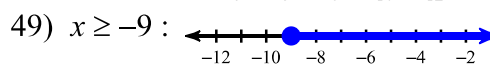
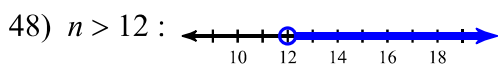
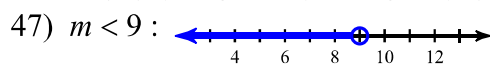
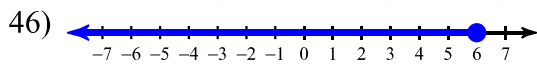
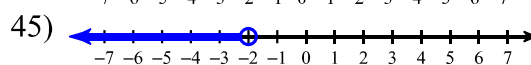
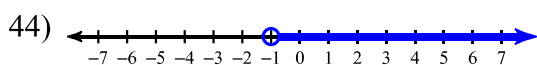
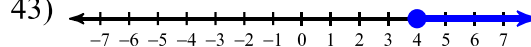
38) $\{14\}$

39) $\{-16\}$

40) $\{-3\}$

41) $\{-20\}$

42) $\{17\}$



51) $13x$

52) $-3k$

53) $9 + 11x$

54) 0

55) $-13k$

56) $4 + p$

57) $8b + 8 + 2b^2$

58) $15a^2 - 66a$

59) $-40x^2 - 34x - 6$

60) $-7x^2 + 59x - 8$

61) $3 + 4x$

62) $-20n + 9 - 32n^2$

63) $2 \cdot 3 \cdot 53$

64) $2^2 \cdot 5 \cdot 13$

65) $7 \cdot 47$

66) $2 \cdot 3 \cdot 5 \cdot 11$

67) $3 \cdot 7 \cdot 17$

68) $3^2 \cdot 43$

69) 25

70) 32

71) 5

72) 38

73) 1

74) 26

75) 3

76) 17

77) 6

78) 6

79) -48

80) -8

81) 21

82) 10

83) 10

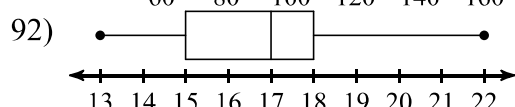
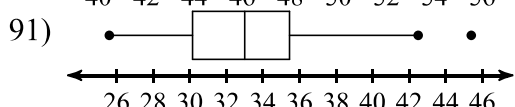
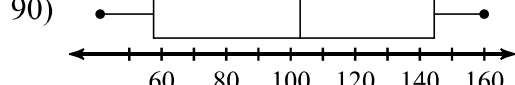
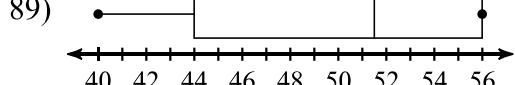
84) 4

85) $\$9,950.00$

86) $\$397.80$

87) $\$1,176.00$

88) $\$529.20$



93) 0.29

94) 0.009

95) 0.05

96) 0.148

97) 6.95

98) 0.6

99) 12%

100) 12.5%

101) 270%

102) 850%

103) 60%

104) 610%

105) 73%

106) 0.5%

107) $\$1,938.00$

108) $\$35.96$

109) $\$104.97$

110) $\$80.47$

111) $\$1.40$

112) $\$30,400.00$

113) 28.6% increase

114) 74% decrease

115) 90.4% decrease

116) 88% decrease

117) 47.1% decrease

118) 57.1% increase

119) 139.5

120) 16.2

121) 72.8%

122) 18.7

123) 600

124) 18.3

125) 11

126) 20

127) 63

128) 40

129) 90

130) 4

131) 5

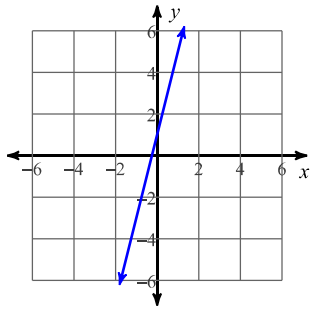
132) 5.8

133) 14.9

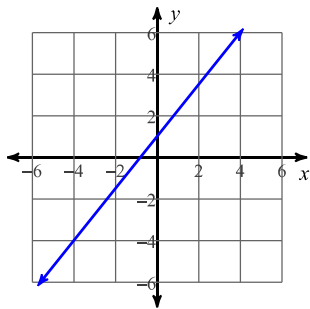
137) 5

141) 9.2

145)



148)

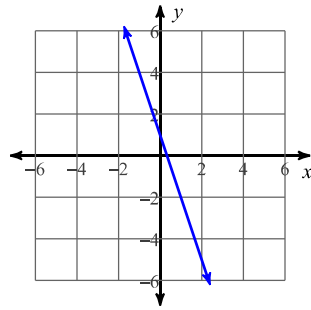


134) 15.2

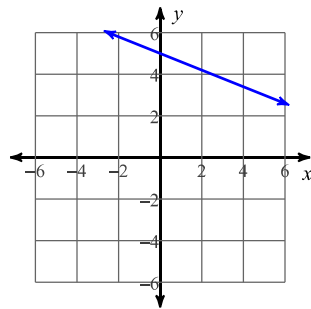
138) 9

142) 8.2

146)



149)

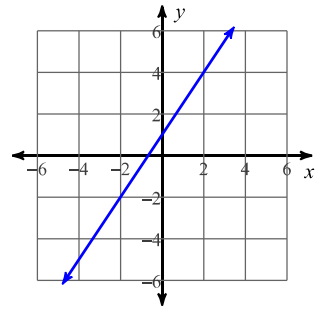


135) 9.2

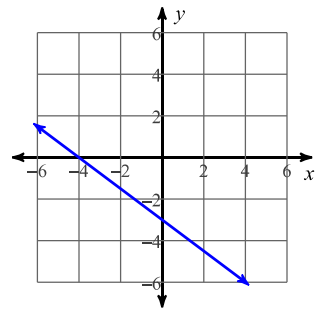
139) 12

143) 6.7

147)



150)



136) 7.3

140) 11

144) 5.7