

Honors Math I Summer Assignment

The following skills and computations are pre-requisites to the skills you will learn throughout your time in Honors Integrated Math I. You are expected to know how to simplify and/or solve the following problems upon entrance into Honors Math I. In addition, you will be asked to complete a test that includes the following types of problems and do so ***without the use of a calculator***. Your score on this test will be used as a data point when determining if you are placed in the appropriate math class at Mill Valley. I would encourage you to put away your calculator when completing the problems below. You also ***must show your work*** to receive credit.

Compute the following without decimals or calculators. Answers must be in simplest form. If necessary, give fractions as improper and *not* mixed numbers.

1) $\frac{1}{4} + \frac{2}{5}$

2) $\frac{3}{4} - \frac{2}{3}$

3) $\frac{5}{9} + \frac{1}{6}$

4) $8 \cdot \frac{3}{4}$

5) $\frac{7}{16} \cdot \frac{12}{5}$

6) $15 \cdot \frac{2}{3}$

7) $2\frac{1}{3} \cdot 6$

8) $2\frac{3}{4} \cdot 3\frac{1}{6}$

9) $\frac{5}{36} \cdot 12$

10) $\frac{7}{5} \div 3$

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

12) $7\frac{1}{2} \div 1\frac{1}{4}$

13) $6 \div \frac{2}{3}$

14) $32 \div 1\frac{1}{15}$

15) $\frac{81}{100} \div \frac{9}{10}$

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

17) $7 \div 4$

18) $9 \cdot \frac{4}{9}$

19) $\frac{2}{3} + \frac{1}{3} \div \frac{9}{7}$

20) $\frac{7}{8} \cdot 56$

21) $\frac{7}{8} \div 56$

22) $\frac{\frac{3}{5}}{\frac{10}{12}}$

23) $\frac{\frac{13}{4}}{6}$

24) $\frac{4}{\frac{5}{12}}$

Round each value to the nearest whole number.

25) 59.1

26) 3.987

27) -0.9

28) 0.21

29) 39.57

30) 101.293

Round each value to the nearest tenth.

31) 6.78

32) -8.212

33) -3.068

34) 82.929

35) 15.236

36) 42.78

37) 75.02

38) -13.52

39) 9.997

Round each value to the nearest hundredth.

40) 8.456

41) -3.262

42) 8.9026

43) 6.551

44) -7.84312

45) -9.479

46) 12.007

47) 10.502

48) -6.4280

Express as a fraction in simplest form. If necessary, give fractions as improper and *not* mixed numbers.

49) 0.8

50) 0.45

51) $1.\bar{3}$

52) 12%

53) 2.5

54) 2.5%

Express as a decimal.

55) 35%

56) 0.15%

57) $9\frac{1}{2}\%$

58) $\frac{1}{50}$

59) $\frac{6}{5}$

60) $\frac{2}{3}$

Simplify each expression without decimals or calculators.

61) $5(x - 13)$

62) $\frac{1}{3}(x - 12)$

63) $-\frac{4}{5}(10x - 15)$

64) $\frac{2}{3}\left(24x + \frac{4}{5}\right)$

65) $\frac{0.5x+10}{2}$

66) $(x + 1) + (x - 5)$

67) $(x + 1) - (x - 5)$

Evaluate each expression.

68) $(5 \times 2) \div 2$

69) $2(3 + 6)$

70) $3 \div (2 + 1)$

71) $3 \div (5 - 2)$

72) $\frac{(-14)-(-3)\times 2}{-1}$

73) $(-5) - \frac{3x^2}{-1}$

74) $(10 \div 5 + (4 - 3) \times 3) \times 6 - 6 \div 2$

75) $(5 \times 5) \div (5 \times 1^2) + 6 - 3 + 3$

76) $8 \div ((2(5 + 6 - 3) - 5 - 1) - 6)$

77) $(1 + 3 - 2 + 1) \times 2 \div (4 + 4 - 6)$

Evaluate the expression for the given values without decimals or calculators.

78) $-x^2$ for $x = 4$

79) $t^2 + 11$ for $t = -5$

80) xy^3 for $x = 6$ and $y = -2$

81) $\frac{10}{x^2}$ for $x = 5$

82) $4(r^2 - 3) + 7(r - 2)$ for $r = -5$

83) $y^2 - 5(3y - 12)$ for $y = 10$

84) What is the value of y for each of the given values of x ?

$y = -2x + 7$

x	y
-8	
0	
3	

Solve each equation. If necessary, give all answers as fractions as improper fractions in simplest form and not decimals.

85) $-x = 2$

86) $-3x - 9 = -16.5$

87) $6(1 + 3x) - 2x = 86$

88) $84 = -7(x - 5)$

89) $132 = 4(3 - 6x)$

90) $89 = -6 + 5(5x - 1)$

91) $3n + 2 = 5(n - 3) + 6$

92) $4(2y + 3) - 3 = y + 3(2 - y)$

93) $3(7 - 2n) = 30 - 7(n + 1)$

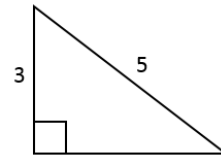
94) $6z - 2(2z + 5) = 6(5 + z)$

Use the Pythagorean Theorem to find the length of each missing side.

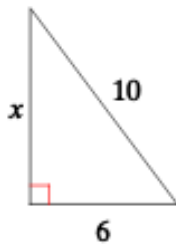
95)



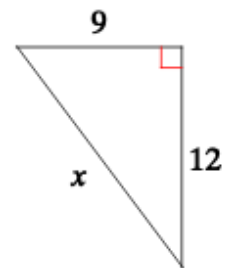
96)



97)



98)



Find the slope of each line.

99) $y = -\frac{1}{2}x + 4$

100) $y = 5x$

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

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

Find the slope between the given pair of points.

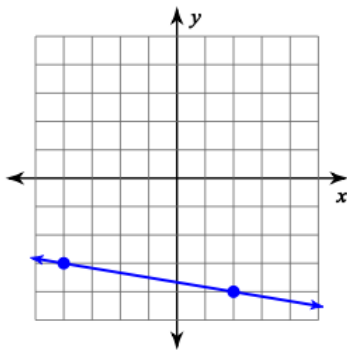
103) (11, 19) and (-5, 9)

104) (8, -10) and (-17, 20)

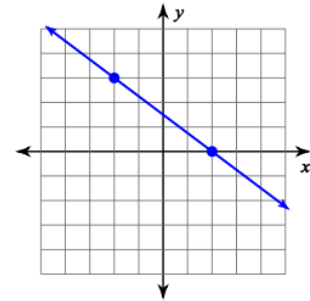
105) (15, 10) and (6, 4)

106) (16, 9) and (-6, 16)

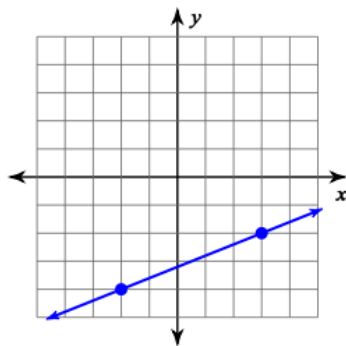
107)



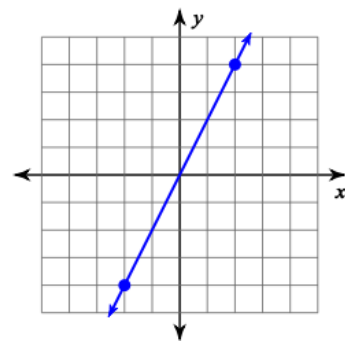
108)



109)



110)



Identify the independent and dependent quantities in the following scenarios.

111) The number of hours worked, and the money earned

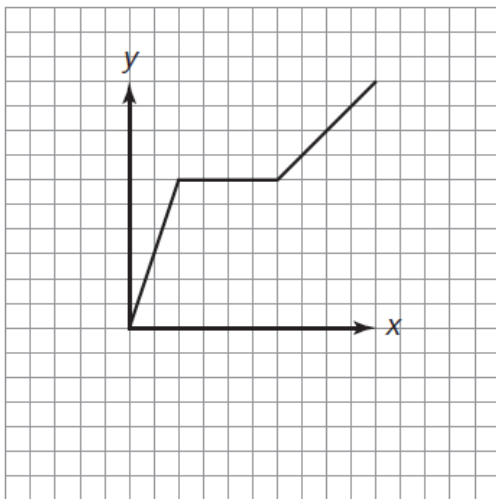
112) The miles driven per hour

113) Candice is a building manager for the Crowley Enterprise office building. One of her responsibilities is cleaning the office buildings aquarium. For cleaning, she must remove the fish from the aquarium and drain the water. The water drains at a rate of 10 gallons per minute.

114) A plane ascends at a rate of 900 feet per minute

115) The Elkwood Aquatic Society is working with various reptile species to increase their populations. In their latest effort, the initial population of 450 endangered turtles tripled each year for the past five years.

116) Brady runs for his high school cross country team. His strategy for each 5-kilometer race is always the same. He begins by increasing his speed so that by the time he reaches the first kilometer, he is running at a speed of 0.3 km/min. He then maintains that speed for the next 2 kilometers. He then gradually speeds up for the remaining 2 kilometers so that when he crosses the finish line, he is running at a speed of 0.5 km/min. Identify the independent and dependent quantities and label the x- and y-axis with the appropriate quantity and unit of measure.



117) A freshly made cup of tea is served at a temperature of about 180°F. The tea cools rapidly at first, and then slows down gradually as it approaches room temperature.

