

Honors IM2 Summer Assignment

Name: _____

DUE: **Thursday, August 20, 2026**

Directions:

The following skills and computations are ***pre-requisites*** to the skills you will learn throughout your time in Honors Math 2. You are expected to know how to simplify and/or solve the following 126 problems—***without a calculator***—upon entrance into Honors Math 2. If doing so is a struggle, then Honors Math 2 may not be the correct placement for you.

You will take a **QUIZ** on the third day of class that covers the problems on this assignment. The quiz will be completed ***without the use of a calculator***. Since it is important to practice how you are expected to perform, I would encourage you to put away your calculator so you are not tempted to use it. 😊

You ***must also show 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) $\frac{\frac{13}{4}}{\frac{4}{6}}$

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

Round each value to the nearest whole number.

25) 59.19

26) 3.987

27) -0.9

28) 0.21

29) 39.57

30) 101.293

Round each value to the nearest tenth.

31) 6.781

32) -8.219

33) -3.068

34) 82.949

35) 15.246

36) 42.78

37) 75.02

38) -13.529

39) 9.997

Round each value to the nearest hundredth.

40) 8.456

41) -3.2629

42) 8.9026

43) 6.5549

44) -7.84462

45) -9.479

46) 12.007

47) 10.502

48) -6.428

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) $-2(x^2 - 4x - 1)$

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

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

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

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

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

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

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

70) $(x - 2)(x + 13)$

71) $(x - 11)(x - 1)$

72) $(x - 6)^2$

73) $x^2 + x + x^2$

74) $3x(2x - 3) + 2x(1 + x^2)$

75) $x^2 \cdot x^3$

76) $(x^2)^3$

77) $\frac{x^4}{x^6}$

78) $\frac{5a^{11}b^2}{15a^7b^9}$

79) $\sqrt{10^2 - 4(9)(1)}$

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

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

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

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

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

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

85) $4(r^2 - 3) + 7(r - 2)$ for $r = -5$

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

87) 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 improper fractions in simplest form and not decimals.

88) $-x = 2$

89) $-3x - 9 = -16.5$

90) $x^2 = 25$

91) $5x^2 = 80$

92) $50 = \frac{x}{4}$

93) $50 = \frac{4}{x}$

94) $3n + 2 = 5(n - 3) + 6$

95) $4(2y + 3) - 3 = y + 3(2 - y)$

96) $3(7 - 2n) = 30 - 7(n + 1)$

97) $6z - 2(2z + 5) = 6(5 + z)$

98) $\frac{2}{x} = \frac{3}{9}$

99) $\frac{12}{31} = \frac{3}{x}$

100) $\frac{2n-3}{5} = \frac{n+2}{6}$

101) $\frac{2-x}{3-x} = \frac{4}{9}$

Find the equation in slope-intercept form ($y = mx + b$) of each line described. (Note: You may need to start with a different form of the line.)

102) with slope $\frac{3}{5}$ and y-intercept $(0, -\frac{7}{10})$

103) with slope $-\frac{3}{5}$; through $(-10, 2)$

104) containing $(1, 4)$ and $(3, 5)$

105) containing $(-5, 2)$ and $(0, 1)$

Find the equation of each line described.

106) a horizontal line through $(5, 7)$

107) a vertical line through $(-1, -2)$

108) with slope 0; through $(-5, -2)$

109) with undefined slope; through $(10, -4)$

Find the x- and y-intercepts for each linear equation in slope-intercept form. Write as ordered pairs. May give decimal answers, if desired.

110) $y = \frac{1}{3}x - 9$

111) $y = -2x + 11$

Find the x- and y-intercepts for each linear equation in standard form. Write as ordered pairs.

112) $3x + 5y = 15$

113) $-2x + 11y = 11$

114) $x + y = 10$

115) $x - 5y = -25$

Solve each system of equations. Write solutions as ordered pairs.

116) $\begin{aligned} x + y &= 8 \\ x - 2y &= -1 \end{aligned}$

117) $\begin{aligned} 5x - 4 &= 2y - 3 \\ y - 4 &= 2x - 1 \end{aligned}$

118) $\begin{aligned} 3x + 4y &= -25 \\ 2x - 3y &= 6 \end{aligned}$

119) $\begin{aligned} 4x + 3y &= 1 \\ 6x - 2y &= 21 \end{aligned}$

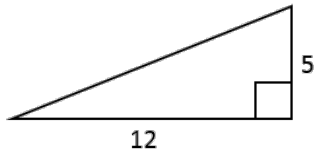
Use the Distance Formula to calculate the distance between the given points.

120) (1, 2) and (5, -1)

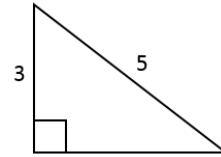
121) (-3, 6) and (-3, -2)

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

122)

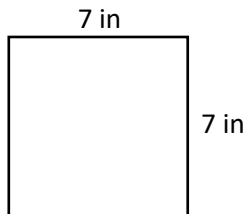


123)

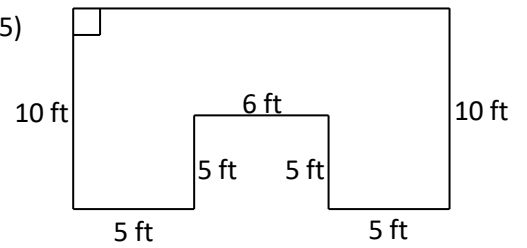


Find the area and perimeter.

124)



125)



Find the area and circumference of the circle in terms of pi.

(This means do not actually multiply by pi in your calculator—but leave the pi in your answer.)

126)

