

Name \_\_\_\_\_  
Date \_\_\_\_\_

MTH 098 – Introduction to Algebra  
Class #16 - Review #2 HW

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*Review Class – Hour #2*

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**Section 1. Polynomial – Addition and Subtraction.**

Simplify.

16.  $\frac{3x-12}{5x-20}$

17.  $\frac{x+3}{x^2-5x-24}$

18.  $\frac{3x^2-7x-20}{16-x^2}$

Perform the indicated operation, leaving answers in simplest form.

19.  $(2b+5)(3b-2)$

20.  $(5x+3)(2x+7)$

21.  $(x-6)(2x-1)$

22.  $(x+7)(x-7)$

23.  $(4x-1)(4x+1)$

24.  $(y+2)^2$

25.  $(3x-4)^2$

26.  $(2x^2-3x+6)+(3x^2+8x-9)$

27.  $(3a^2-2a+9)-(-2a^2+5a+12)$

28.  $(-7y^2+2y+3)-(3y^3-5y+8)$

29.  $(x^2y^3)(x^3y^4)$

30.  $(5a^2b)(-3a^3b^2)$

31.  $x^2(x^2 + 3x - 2)$

32.  $\frac{3x^3 - 6x^2 + 9x}{3x}$

33.  $\frac{10a^3 - 15a^2 + 20a}{-5a}$

34.  $\frac{12a^4 - 16a^3 + 8a^2}{4a^3}$

35.  $\frac{16x^3}{24a^2b} \cdot \frac{12ab^2}{8x^2}$

36.  $\frac{x^2 - x - 20}{x^2y^3} \cdot \frac{x^3y^2}{x^2 - 10x + 25}$

37.  $\frac{12a^2b^3}{18x^3y} \div \frac{16ab^2}{9x^2y^3}$

38.  $\frac{x^2 + 3x + 2}{xy^2} \div \frac{x^2 + 4x + 4}{x^2y^2}$

39.  $\frac{x^2 - 4y^2}{5x + 20} \cdot \frac{x^2 + 4x}{5x^2 - 9xy - 2y^2}$

40.  $\frac{2}{3x} + \frac{5}{x^2}$

41.  $\frac{4}{x} + 5$

42.  $\frac{7x - 2}{x^2 + 3x - 28} - \frac{6x - 9}{x^2 + 3x - 28}$

43.  $\frac{7b + 2}{b^2} - \frac{4}{b}$

Factor completely.

44.  $5a^2 - 25a$

45.  $6x^3 - 42x^2 + 54$

46.  $8x^2y^2 - 4xy$

47.  $8a^3b + 12a^2b^2 - 4a^3b^2$

48.  $x^2 - 25$

49.  $9x^2 - 64y^2$

50.  $b^2 - 81c^2$

51.  $x(a - b) + 2(a - b)$

52.  $x^2 + 4x - 3ax - 12a$

53.  $8y^2 + 4y + 6y + 3$

54.  $a^2 - 4a - 21$

55.  $p^2 + 5p - 24$

56.  $x^2 + 5x - 14$

57.  $ax^2 + 17ax + 52a$

58.  $x^3 - 3x^2 - 70x$

59.  $12x^2 - 11x - 15$

60.  $8x^2 - 10x + 3$

61.  $50x^2 + 65x - 15$

62.  $9x^2 + 12xy + 4y^2$

63.  $3a^3 - 42a^2 + 147a$

Solve the equations.

64.  $3x^2 + 5x = 0$

65.  $x^2 + 2x - 15 = 0$

66.  $x(x - 5) = 50$

67.  $\frac{1}{2} - \frac{4}{x} = \frac{5}{6}$

68.  $\frac{x-4}{3} = \frac{x+12}{4}$

69.  $\frac{x+1}{3} = \frac{x}{9}$

For the following word problems, identify the variable used, set up an equation and solve algebraically.

103. Find the length of a rectangle whose perimeter is 104 meters and whose width is 17 meters.
104. Find two complementary angles such that the larger angle is 10 degrees more than three times the smaller angle.
105. The larger of two supplementary angles is 5 times the smaller angle. Find the larger angle.
106. A birdseed mixture is made by combining sunflower seeds with cracked corn. If the sunflower seeds sell for \$0.70 per pound and the cracked corn costs \$0.45 per pound, how much of each should be used for 10 pounds of a birdseed mixture that sells for \$0.65 per pound?
107. The height of a triangle is 10 feet and the base is 12 feet. Find the area of the triangle.
108. One number is eight less than another number. The sum of the two numbers is 50. Find the smaller number.
109. The sum of three consecutive odd integers is 117. Find the three integers.
110. A company invested \$10,000 in two money market accounts for one year, one earning 9% simple interest, the other 7.5% simple interest. How much did they invest in each account if the total interest earned was \$855?
111. Calvin traveled 160 miles from Rochester to Binghamton in 3 hours. Find his rate, to the nearest tenth.
112. In an isosceles triangle, two sides are equal. The third side is 8 inches less than one of the equal sides. The perimeter is 46 inches. Find the length of one of the equal sides.
113. A man 6 feet tall casts a shadow 2 feet long at the same time a nearby building casts a shadow 38 feet long. Find the height of the building.
114. Denny takes 3 hours to rake the leaves from his lawn. His son Jordan takes 5 hours. How long does it take if they work together?