MONTGOMERY COLLEGE MATH DEPARTMENT
MA 090 MIDTERM EXAM REVIEW

NOTE: A calculator is NOT ALLOWED on the midterm exam.

ROUNDING

Round to the given place value.

		a) tens	b) hundreds	c) thousands
1.	5281			
2.	19,845			

ORDER OF OPERATIONS

Simplify.

3. $-8-(-13)$
4. $-8(13)$
5. $8\cdot 6+18\div(-2)$
6. $6(4+2\cdot 3)-7(4^2-9)$
7. $84\div 2\cdot 3-3^2$
8. $-5+(2)(-3)(-4)(-1)$
9. $-15-11+8$
10. $96\div(-4)\cdot 3$
11. $(3+4)^2-9^2$
12. $3+4(-1+7)\div 2^3$
13. $\dfrac{10(-1)-(-2)(-3)}{2[-8\div(-2-2)]}$

Insert either <, > or = between the pair of numbers to make a true statement.

14. -4^3 _____ $(-4)^3$
15. -5^2 _____ $(-5)^2$
16. -27_____-29
17. $\dfrac{5}{12}$_____$\dfrac{3}{8}$
18. $-|-23|$_____$-(-23)$
19. $\left|-\dfrac{3}{4}\right|$_____$\left|-\dfrac{5}{4}\right|$
20. Write the given numbers in order from smallest to largest: a) $-23, -14, -\dfrac{29}{2}$ b) $\dfrac{2}{3}, \dfrac{5}{9}, \dfrac{5}{6}$

ALGEBRAIC EXPRESSIONS

Simplify.

21. $-8a-3t+5a-t$
22. $5x-8+x-3$
23. $-5(4x-7y-3)$
24. $3(5x-2)+4(3-7x)$
25. $7(2x+3)-6(3x-1)$

26. **Evaluate the expression for** $x=-4$, $y=-2$.

a. x^2-y b. $\dfrac{2+4x}{y}$

27. **Evaluate the expression for** $a=\dfrac{3}{4}$, $b=-\dfrac{1}{2}$

a. $2a\div b$ b. ab

Translate into an algebraic expression.

28. Twenty decreased by twice a number

29. Seventeen added to the product of five and a number

30. Eight times a number subtracted from 12

31. Eight times the difference of twelve and a number

32. Five times the sum of a number and four

FRACTIONS

Perform the following operations. Write answers in lowest terms. SHOW ALL WORK.

33. $-\frac{7}{12}+\frac{5}{12}-\frac{1}{12}$

34. $\frac{2}{15}+\frac{3}{10}$

35. $1\frac{3}{8}-\frac{5}{8}$

36. $-3\frac{2}{5}+5\frac{1}{10}$

37. $\left(\frac{-7}{15}\right)\div\left(\frac{-2}{3}\right)$

38. $6-3\frac{2}{7}$

39. $-2\frac{7}{9}\cdot 1\frac{4}{5}$

40. $\frac{-4}{5}\div 4$

41. $\left(-\frac{1}{3}\right)^4$

42. $\frac{2}{3}-\frac{2}{9}-\frac{1}{6}$

43. $\left(-\frac{6}{25}\right)\left(-\frac{5}{12}\right)$

44. There are 750 faculty members at MC, Rockville. If $\frac{3}{5}$ of the faculty are part-time, how many part- time faculty members are there? How many full-time faculty members are there?

45. A truck's gasoline tank holds 36 gallons of gas. How much gas is in the tank when it is $\frac{3}{4}$ full?

46. Joe needs 3 pieces of wire, each $1\frac{5}{6}$ yards long. He has a spool of wire with $5\frac{3}{4}$ yards on it. Will it be enough? If so, how much will be left?

47. Cheryl's annual salary is $24,300. If she pays $\frac{1}{6}$ of her annual salary for rent, how much of her salary remains?

AREA AND PERIMETER

48. Find the perimeter and area of the rectangle whose length is 98 meters and width is 76 meters. Give correct units.

49. Find the perimeter and area of the rectangle whose length is $\frac{1}{2}$ mile and width is $\frac{1}{4}$ mile. Give correct units.

EQUATIONS

Solve and check.

50. $-4x-3=5$ 51. $-7+3p=13p-5$ 52. $2(3-y)+4y=-6$

53. $9x-3=-3$ 54. $1-8x=-5-6x$ 55. $9-3x=14+2x$

56. $3(5x-1)-2=13x+3$ 57. $\frac{2}{3}t-4=2$ 58. $10+\frac{1}{4}x=5$

59. $\frac{1}{4}m-\frac{3}{8}=\frac{1}{2}$

Write the following as an equation and solve.

60. Six less than twice a number is equal to negative twenty-eight. Find the number.

61. The sum of five and a number is negative ten. Find the number.

62. Twenty decreased by a number is negative fifteen. Find the number.

63. The sum of five times a number and seventeen is two. Find the number.

64. Eight times a number subtracted from twelve is negative twelve. Find the number.

ANSWERS – MA 090 REVIEW

1. a) 5280 b) 5300 c) 5000 2. a) 19,850 b) 19,800 c) 20,000 3. 5 4. –104 5. 39 6. 11

7. 117 8. -29 9. –18 10. –72 11. –32 12. 6 13. –4 14. = 15. < 16. > 17. >

18. < 19. < 20. a) $-23, -\frac{29}{2}, -14$ b) $\frac{5}{9}, \frac{2}{3}, \frac{5}{6}$ 21. $-3a-4t$ 22. $6x-11$

23. $-20x+35y+15$ 24. $-13x+6$ 25. $-4x+27$ 26. a) 18 b) 7 27. a) –3 b) $-\frac{3}{8}$ 28. $20-2x$

29. $5x+17$ 30. 12 - 8x 31. $8(12-x)$ 32. $5(x+4)$ 33. $-\frac{1}{4}$ 34. $\frac{13}{30}$ 35. $\frac{3}{4}$ 36. $\frac{17}{10}$ or $1\frac{7}{10}$

37. $\frac{7}{10}$ 38. $\frac{19}{7}$ or $2\frac{5}{7}$ 39. –5 40. $-\frac{1}{5}$ 41. $\frac{1}{81}$ 42. $\frac{5}{18}$ 43. $\frac{1}{10}$ 44. 450 PT; 300 FT

45. 27 gal 46. $5\frac{1}{2}$ yd needed; $\frac{1}{4}$ yd left 47. \$20,250 48. $P=348$ m; $A=7448\text{ m}^2$ 49. P = $1\frac{1}{2}$ mi;

A= $\frac{1}{8}\text{ mi}^2$ 50. $x=-2$; 5 = 5 51. $p=-\frac{1}{5}$; $-\frac{38}{5}=-\frac{38}{5}$ 52. $y=-6$; $-6=-6$ 53. x = 0; $-3=-3$

54. x = 3; $-23=-23$ 55. $x=-1$; 12 = 12 56. x = 4; 55 = 55 57. t = 9; 2 = 2 58. $x=-20$; 5 = 5

59. m = $\frac{7}{2}$; $\frac{1}{2}=\frac{1}{2}$ 60. $2x-6=-28; x=-11$ 61. $5+x=-10; x=-15$ 62. $20-x=-15; x=35$

63. $5x+17=2; x=-3$ 64. $12-8x=-12; x=3$