Math 99 **Sample Exam 2** Answers

1. Simplify each of the following.

   (a) $|-3^3 - 2\,|-5 - 2\,(-4)|| =$ 33

   (b) $\sqrt{-4^2 - (-1)^4 + 2 \cdot 3^2 \div 2 \cdot 6 - 1} =$ 6

   (c) $\left|(-3)^2 + \left|(-6)^2 + (-2)^3\right| - 2\right| + 1 =$ 36

2. Simplify each of the following.

   (a) $-(3a - 8b) - (5a - b) =$ $-8a + 9b$

   (b) $5x - 3\,(2x - y) =$ $-x + 3y$

   (c) $-y + 2\,(3x - y) - (2x - y) + 2\,(-2x + y) =$ 0

   (d) $\dfrac{2x - 5}{5 - 2x} =$ -1

3. Solve each of the following equations. Make sure to check your solutions.

   (a) $\dfrac{x + 8}{3} = -2$ -14

   (b) $\dfrac{x}{3} + 8 = -2$ -30

   (c) $|2x - 1| = 1$ $0, 1$

   (d) $|2x - 1| = -1$ no solution

4. Find the perimeter of the rectangle determined by the points $A\,(-2, -7)$, $B\,(3, -7)$, $C\,(3, 2)$, and $D\,(-2, 2)$ $P = 28$ units

5. Word Problems.

   (a) The ratio of cars to bicycles was 12 to 35. If there was 300 cars, how many bicycles were there? 875

   (b) The ratio of cars to bicycles was 12 to 35. If there was 910 cars, how many bicycles were there? 312

   (c) Bill took four exams. He earned 78, 94, and 85 points on the first three exams. What was his score on the fourth exam if his average was 84 points? 79

   (d) One number is 37 larger than the other. The sum of these numbers is 91. Find these numbers. 27 and 64

   (e) One number is 91 larger than the other. The sum of these numbers is 37. Find these numbers. -27 and 64

   (f) One side of a rectangle is 17 in long. Find the sides of the rectangle if its perimeter is 82 in. 24 in

6. Consider the equation $-x + y - 3x^2 = -x^2 - 6(x+1) + x^3$. For each of the following points given, determine whether it is on the graph of the equation or not.

   (a) $(2, -1)$ $-15 \neq -14$ no

   (b) $(-1, 0)$ $-2 = -2$ yes

   (c) $(3, 24)$ $-6 = -6$ yes

   (d) $(-2, 4)$ $-6 = -6$ yes

   (e) $(-3, -1)$ $-25 \neq -24$ no