Midterm II

MATH 050

Saturday, August 46, 2038 8:60 – 9:90 PM **Founders Auditorium**

Instructions: **Show *all* work.** Failure to show work may result in loss of credit. Write your solutions in the space provided on the *answer sheets*. Do *not* hand in scratch paper. There are fourteen questions. You may use your scientific calculators (all types, except for those that are programmable!). Do *not* give your answers in decimal point number notation; use fractions instead where necessary. Some partial credit ***may*** be given. Remember to *simplify* your answers, please. **Good Luck!**

1) Graph the set of numbers: $(-\infty, 4]$. Then write an inequality in x describing this set.

2) How much water should be added to 72 gallons of a solution that is 75% antifreeze in order to get a mixture that is 50% antifreeze? Write down an equation and solve; a good guess is *not* enough.

3) A student has scores of 73, 87, and 90 on her Algebra Midterms. An A is received if the total number of points is at least 440 . Use an *inequality* to find the range of scores she can make on her Final Exam in order to receive an A in the course. (The maximum possible number of points on the Final is 200).

4) Plot each ordered pair and state in which quadrant, if any, each point lies.

(a) $(-8, -3)$; **(b)** $(2, 6)$.

5) Solve each inequality. Write the solutions in interval notation.

(a) $13(x-1)-3 \geq -2x+7$; **(b)** $-7 < 4x-2 \leq -1$.

6) Determine whether each ordered pair is a solution of the equation $6x - y = 11$;

(a) $(2, 1)$, **(b)** $(0, 2)$, **(c)** $(-1, 5)$.

7) Graph. $4x + 3y = 12$.

8) Graph. $y = 2x - 6$.

9) Determine whether the lines through each pair of points are parallel, perpendicular or neither. $(5, -2)$ and $(16, 5)$; $(1, 3)$ and $(14, 11)$.

10) Determine the slope and the intercepts of the line whose equation is $13x - 7y = 5$.

11) Find an equation of the line through $(5, 5)$ and $(-5, 6)$.

12) Subtract: $(3x^3 - x^2 - 7x) - (3x^3 + 6x - 12)$.

13) Evaluate **(a)** $(-5)^6$; **(b)** $(3a^3b)^2$.

14) Multiply **(a)** $(3a + b)^3$; **(b)** $(a + 1)(3a^2 - a + 1)$.

You are welcome to keep this *Questions Sheet* for your files.

Points: 6, 6, 6; 5+5, 6+6, 2+2+2, 5; 5, 6, 6, 6; 6, 5+5, 5+5.