MATH II   Prob Set #1 due in class Mon 10/15/12   **A**___ **B**___ **C**___ **D**___ Per__ NAME:_____
Thurs 10/11 = last day for teacher help. (Handed out 10/2/12) Full credit will not be obtained for sloppy, unclear, or incomplete work, or for wrinkled paper. You will be given a final copy of this closer to the due date.

1. Simplify; single simple fraction. (18 pts). Provide FINAL answer only! (I know! weird!)
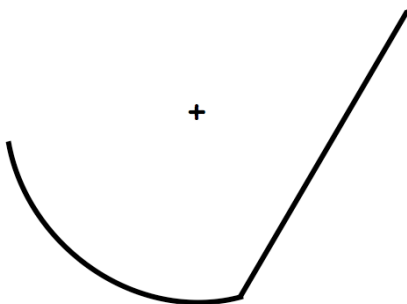
   a. $(Ax + B)^3$

   b. $Ax(C + Bx^D)^2$

   c. $Ax(CBx^D)^C$ Leave answer in this form: $k \cdot n^r \cdot x^p$

   d. $\dfrac{1}{A+x} - \dfrac{3}{B+x}$

   e. $\dfrac{(A \div x)}{\left(\dfrac{B}{1+x}\right)}$ Parentheses added for clarity.

   f. $\dfrac{x^A x^B x^D}{x^C}$

2. This bizarre object consists of a segment joined to a quarter-circle. The center of the circle is at the point where the two little segments cross (they are not part of the object). Accurately draw the locus of points 1.5 cm from this object. (6 pts)

3. A circle has center (C, D). The point (C-3, D+4) is on the circle. Use a labeled diagram, no calculator, no algebraic manipulations. (8 pts)

   a. The line y = k intersects the circle in exactly one point. Determine k (numerical value)

   b. Determine the coordinates of the intersection of the circle and the line x = C+3

4. Draw the circle with center (A, B) and radius 17.

   a. Plot eight lattice points on the circle, none of which is on the same vertical or horizontal line as the center, and label their coordinates on the diagram. (4 pts)

   b. Determine by calculation whether $(A+14, B+10)$ is on, inside, or outside the circle. Explain. (4 pts)