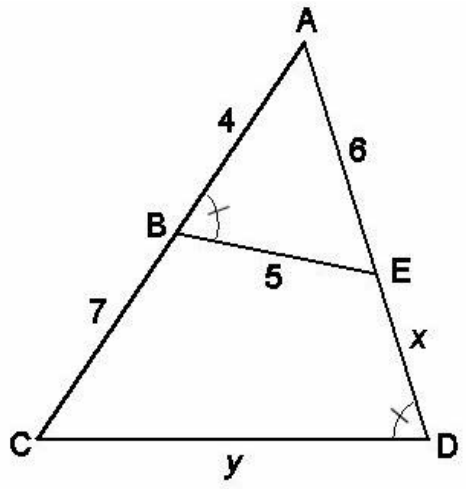
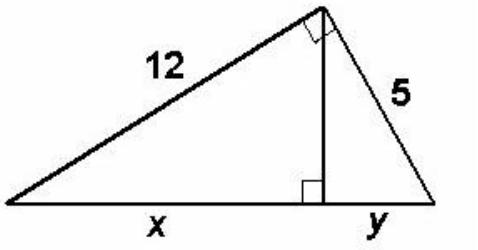
MATH 3370-001 Exam II June 19, 2002

Fill out the cover sheet for your group test. Answer all of the problems on separate paper which you will attach to the cover sheet at the end of the test.. Leave adequate space on your answer sheets between problems for responsive comments from me. You do not need to rewrite the problem statements on your answer sheets. Do your own work. Work carefully. **Show** all relevant steps which lead to your solutions. Retain this question sheet for your records.

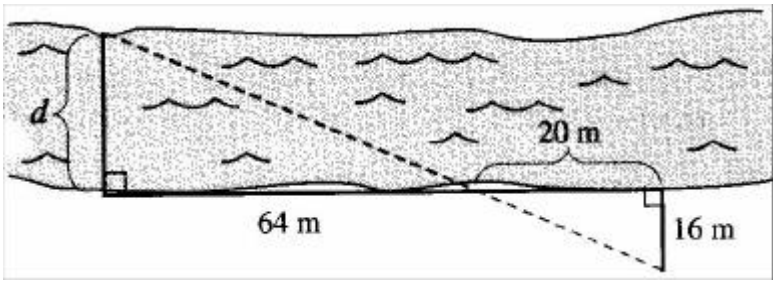
1. Consider the accompanying figure. Determine x and y.



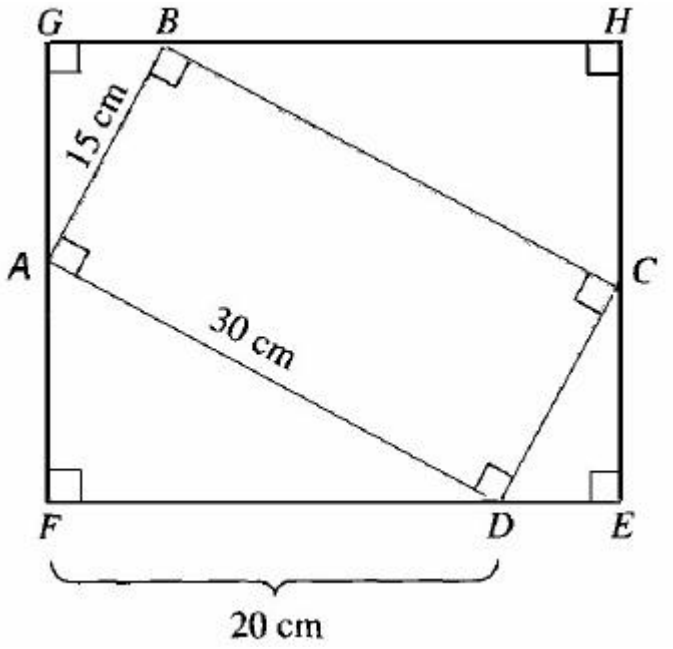
2. Consider the accompanying figure. Determine x and y.



3. Find the distance d across the river as sketch in the accompanying figure.



4. A toy maker wants to cut the plastic rectangle *EFGH* in the accompanying figure into 4 right triangles and a rectangle. Given the measurements as shown, determine the length of $\overline{CE}$.



5. For each of the following equations, write the equation in slope-intercept form and identify the slope (if it exists) and the intercepts (both the *x*-intercept and the *y*-intercept [if they exist]). Then, graph (and label the graphs) all of the lines on one common coordinate system. (Use the attached Graph #1).

a. $3x + 2y = 0$

b. $4x - 15 = 0$

c. $12x - 6y - 9 = 0$

d. $\frac{x}{4} \;\&\; \frac{y}{3} \;'\; \frac{1}{2}$

6. For each of the following pairs of points write the equation of the line determined by the points in slope-intercept form or in the form $x = a$. Then, graph (and label the graphs) all of the lines on one common coordinate system. (Use the attached Graph #2).

a. (3,-2) and (-1,6)

b. (0,2) and (1,-3)

c. (3,-2) and (-6,-2)

d. (-2,-5) and (-2, -1)

7. Solve each of the following system of equations, if possible. If the system of equations does not have a unique solution, explain why not.

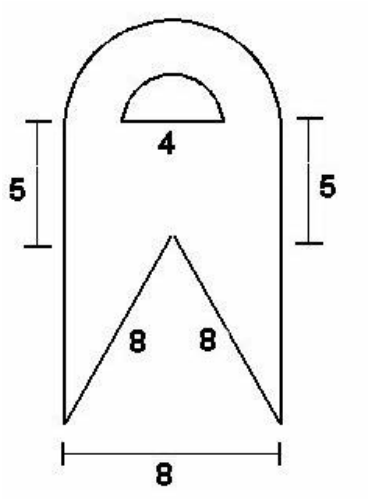
a. $x + 2y = 3$
$2x - y = 9$

b. $\frac{x}{2} \;\%\; \frac{y}{3} \;'\; 1$
$4y - 3x = 2$

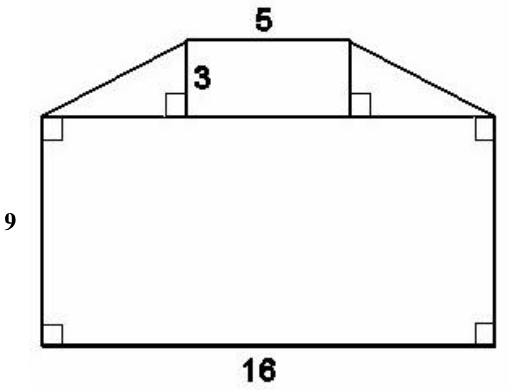
c. $x - 2y = 1$
$4y - 2x = 0$

8. Find the perimeter and area of each of the following figures (both of which have one line of symmetry). Note, any curved arcs are to be considered as semicircles.

a.

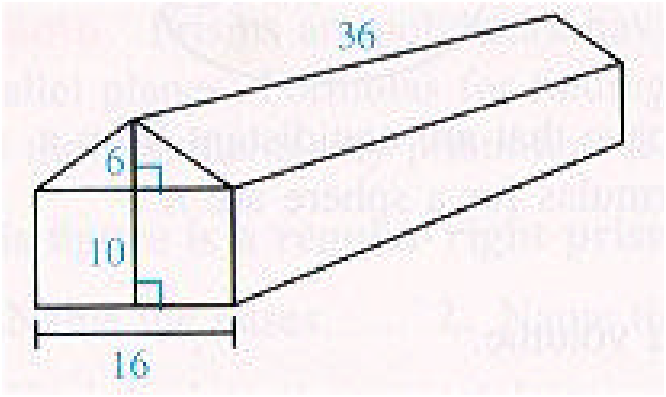


b.

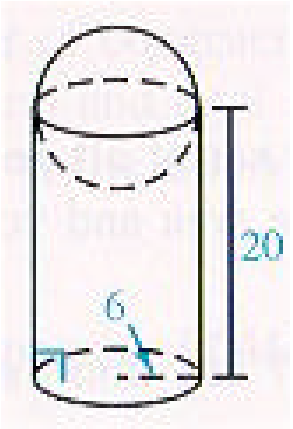


9. Find the surface area and volume of each of the following figures.

a.



b.



10. On the Geoboard (on the inside cover sheet) consider the polygon with vertices ABCEDFGHIJ. Find the perimeter and enclosed area of ABCDEFGHIJ.