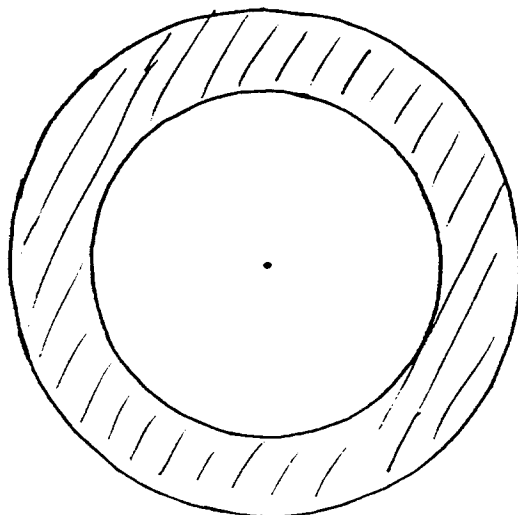


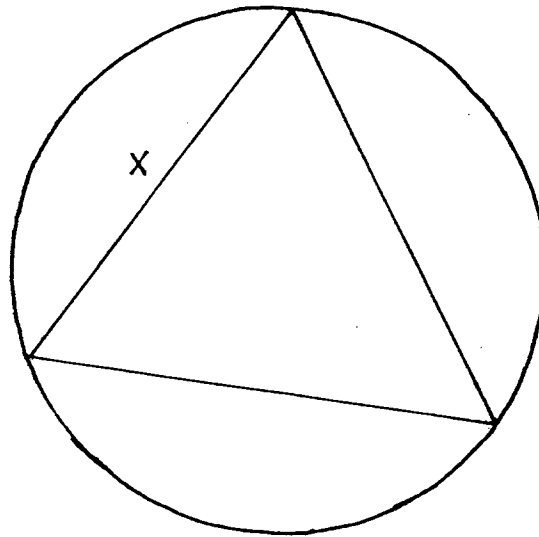
ESP
Kouba
Worksheet 1

- 1.) A rectangle is three times as long as it is wide. Find its dimensions if its diagonal is 40 cm.
- 2.) a.) Write an equation which has $x = 10$ as the only solution.
b.) Write an equation which has two different solutions, one of which is $x = 10$.
- 3.) Consider the polynomial $x^2 + Ax + 8$. Solve for A so that $(x + 4)$ is a factor of the polynomial.
- 4.) Solve for x : $(x + 3/x)(2x - 5) = (x - 3/x)(x + 5)$
- 5.) The sum of a certain integer and its square root is 992. Find the integer.
- 6.) At what time(s) of day are the hour hand and minute hand of a clock together?
- 7.) Juan leaves from Cactus Corners driving straight east. At the same time, Denise takes the road going straight north and drives 20 miles per hour faster than Juan. After one hour they are 80 miles apart. How fast did Denise drive?
- 8.) Two concentric circles are given. The area of the shaded region is 75% of the area of the smaller circle. The radius of the larger circle is 10. Compute the area of the smaller circle.



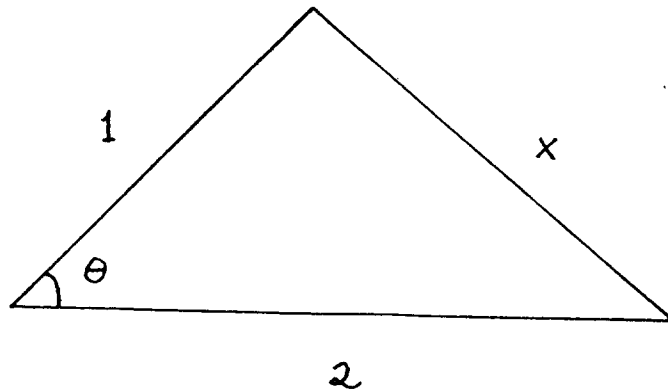
9.) Assume that the triangle inscribed in the given circle is equilateral. Write the area of the circle as a function of

- a.) its radius, r .
- b.) its circumference, C .
- c.) x , the length of one edge of the triangle.



10.) Consider the given triangle. Write the area of the triangle as a function of

- a.) θ
- b.) x



11.) Determine the *exact* value (no calculator approximations) for each of the following trigonometric expressions.

a.) $\sin(\pi/3)$

b.) $\cos(3\pi/4)$

c.) $\tan(5\pi/6)$

d.) $\cot(4\pi/3)$

e.) $\sec(-7\pi/6)$

f.) $\csc(7\pi/4 - 2\pi)$

g.) $\sin(\pi/8) \cos(\pi/8)$

h.) $\sin(\pi/8)$

i.) $\cos(\pi/8)$

j.) $\tan(\pi/12)$

12.) Compute the distance between "opposite" corners in a rectangular box with dimensions 3 ft. by 4 ft. by 5 ft.

13.) Let $f(x) = \sqrt{x^2 + 9}$. Determine two different functions $g(x)$ so that $f(g(x)) = x - \sqrt{x}$.