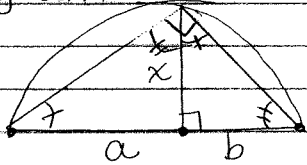


8. "Using the Pythagorean method, solve the following equations for x:

a. $x^2 = 12$

b. $x^2 = 6$ "

When attempting this problem, I first referred to the Pythagorean method and drew a diagram:



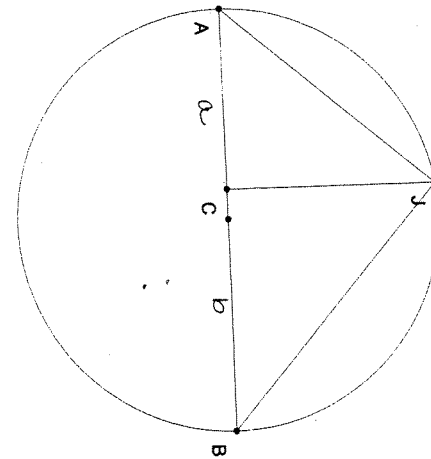
From this diagram I was able to derive Pythagoras method by setting up the ratio:

$$\frac{x}{a} = \frac{b}{x}$$

$$\Rightarrow x^2 = ab.$$

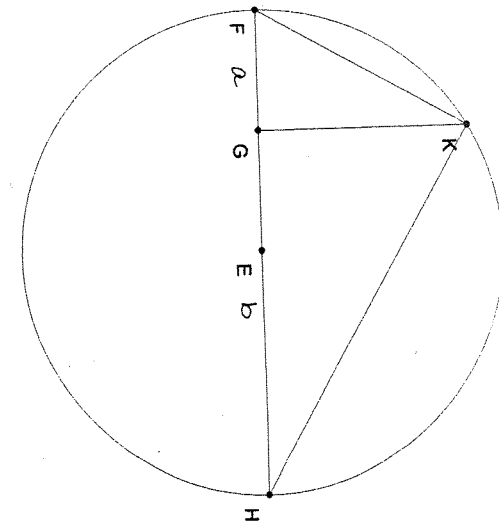
For part a) and b) I used Geometer's Sketchpad to draw the circles and set up values for a and b in order to calculate the distance of x. Part a) required 3 cases: a=3, b=4; a=2, b=6; a=1, b=12. Part b) required only two cases: a=3, b=2; a=1, b=6. Once I had sketched the diagrams, I easily calculated x. For part a) my x-values were 3.47, 3.46, and 3.49 which is very close to the value of $\sqrt{12}$, 3.4641. Part b) was also very accurate calculating x-values of 2.46 and 2.47 compared to the value of $\sqrt{6}$, 2.4495. Therefore, I found Pythagoras method to be very accurate to solve $x^2 = 12$ and $x^2 = 6$.

SAMPLE GSP OUTPUT



AB = 7.01 cm
AC = 3.00 cm
CB = 4.01 cm
m CJ = 3.47 cm

Case 1:
a = 3 b = 4



FE = 4.00 cm
GF = 2.01 cm
GH = 5.98 cm
m GK = 3.46 cm

Case 2:
a = 2 b = 6