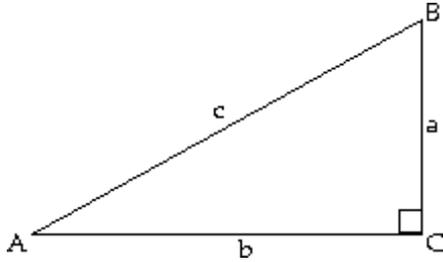<u>PLEASE SOLVE THE TEST WITHOUT USING A CALCULATOR</u>

Name_____

<u>PLEASE SHOW ALL YOUR WORK ... INCLUDING THE DIAGRAMS :</u>

<u>WRITE YOUR WORK AS NEATLY AS POSSIBLE .</u>
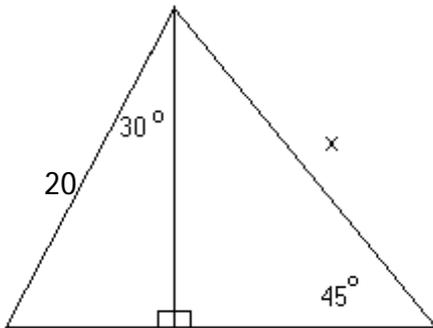
1)

Let c = 13 cm , b = 12 cm , find :

a) cos A =   b) sin B =   c) tan A =

2)   Find the exact value of x in the figure.

3) a) Let $\theta = 510°$

Determine the refernce angle then find the exact value of $\tan(510°)$

b) Let $\theta = -\dfrac{2\pi}{3}$

Determine the refernce angle then find the exact value of $\sec\left(-\dfrac{2\pi}{3}\right)$

4) a) Does the point $\left(\dfrac{1}{\sqrt{5}}, -\dfrac{2}{\sqrt{5}}\right)$ lie on the unit cirlce ? Explain why .

b) Find $p(x,y)$ on the unit circle , given that $x = \dfrac{1}{3}$ and p is in quadrant IV .

5) Let p = (- 3 , 4) be a point on the terminal side of θ.
Find the exact value of each of the six trigonometric functions of θ.

6) If $\sin \theta = -\dfrac{5}{13}$ and the terminial side of θ lies in quadrant III .

Find the exact values of the remaining trigonometric functions .

3

7) Given that $\tan \theta = \sqrt{3}$ and θ in quadrant III , find the exact values of the remaining trigonometric functions .

8) A conservation officer needs to know the width of a river in order to set instruments correctly for a study of pollutants in the river. From point A, the conservation officer walks 90 feet downstream and sights point B on the opposite bank to determine that $\theta = 30°$ (see figure). How wide is the river ? (Give the exact value)

90 ft.
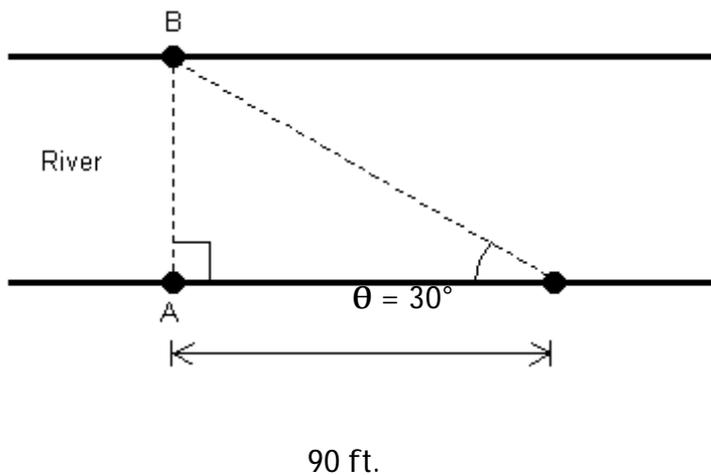
9)   Find the exact value of each expression. Do not use a caclculator.

   a) $\sin^2 \dfrac{\pi}{2} - \cos \pi$ b) $\sec^2 \dfrac{\pi}{3} - \tan^2 \dfrac{\pi}{3}$

10)   Solve for x , where $0 \le x < 2\pi$:

   a) $2 \sin (x) + 1 = 0$ b) $\tan (x) = -1$