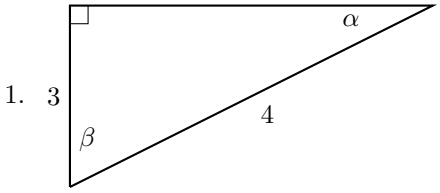
Worksheet 5, Math 1113

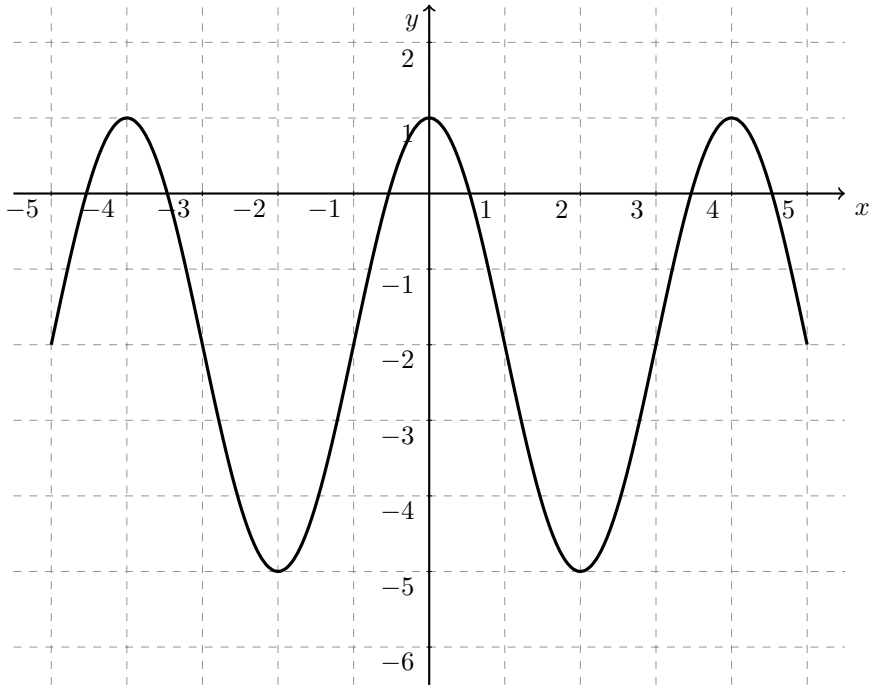
1. 

Find the following values given the triangle on the right.

$\cos(\beta)$
$\sin(\beta)$
$\tan(\alpha)$
$\csc(\beta)$
$\sec(\beta)$
$\cot(\beta)$

2. Convert the given angles
   (a) $\frac{2\pi}{3}$ radians to degrees.
   (b) $36°$ to radians.

3. The function below is defined by
$$f(x) = A\sin(Bx + C) + D$$
Determine the values of the constants A, B, C, and D where A is a positive number.



4. You are given that the length of an arc on a circle is 5, and that the radius of the circle is 2. What is the area of this sector?

5. What is the reference angle of 12.11 radians? Give an exact answer.

6. A surveyor is asked to determine the width of a river. The surveyor identifies a spot directly across the river and then walks 50 meters downstream. The surveyor determines that the angle formed between

the line along the river and the current line of sight to the original spot on the other side is 17°. How wide is the river?

7. Find all values of x satisifying
$$\ln(\cos(x+2)+1) = 0.6$$

8. Find the exact value of
$$\tan\left(\arcsin\left(-\tfrac{4}{9}\right)\right)$$

9. Verify the following identity
$$\cos(\theta) + \sin(\theta)\tan(\theta) = \sec(\theta)$$

10. Determine all of the values of θ that satisfy
$$\cos(\theta)\sin(\theta) - \frac{1}{2}\cos(\theta) = 0.$$