ALEKS® Test 3

PreCalculus / MAT146 – PORTER (Prof. Porter)

Student Name/ID:

1. Answer the following.

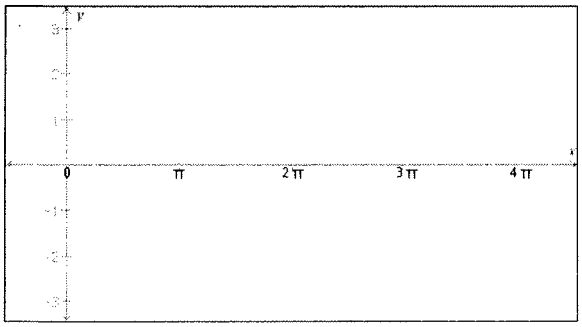
(a) Find an angle between 0 and 2π that is coterminal with $-\frac{5\pi}{6}$.

(b) Find an angle between $0°$ and $360°$ that is coterminal with $510°$.

Give exact values for your answers.

2. Find the reference angle for $\frac{11\pi}{9}$.

3. Graph the function $y=-2\cos\left(\frac{2}{3}x\right)$.

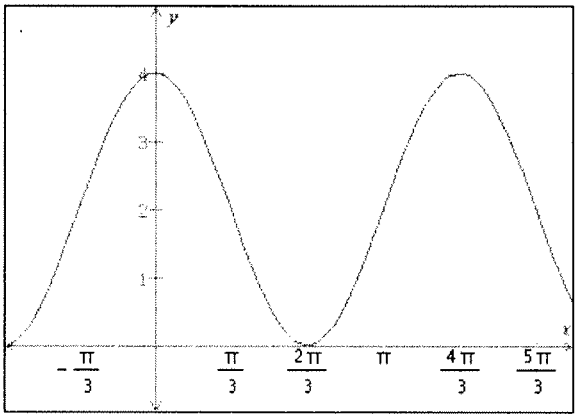


4. Find the amplitude, period, and phase shift of the function.

$$y=-2+2\cos\left(3x-\frac{\pi}{4}\right)$$

Give the exact values, not decimal approximations.

5. Write the equation of a sine or cosine function to describe the graph.



6. Find $\cot\theta$, $\csc\theta$, and $\sin\theta$, where θ is the angle shown in the figure.

Give exact values, not decimal approximations.

7. Determine the quadrant in which the terminal side of θ lies.

(a) $\sin\theta > 0$ and $\tan\theta > 0$ quadrant {I, II, III, IV}
(b) $\cos\theta > 0$ and $\sin\theta < 0$

quadrant {I, II, III, IV}

8. Let $(-7,-5)$ be a point on the terminal side of θ.

Find the exact values of $\cos\theta$, $\sec\theta$, and $\cot\theta$.

9. Prove the identity.

$$\csc x - \sin x = \cot x \cos x$$

10. Prove the identity.

$$\frac{\sin(\pi - x)}{\sin\left(x + \frac{\pi}{2}\right)} = \tan x$$

11.

Find the exact value of $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$.

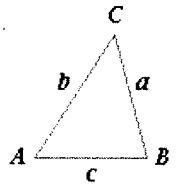
Write your answer in radians in terms of π.

12. Find all solutions of the equation in the interval $[0, 2\pi)$.

$$\cos\theta - 1 = -1$$

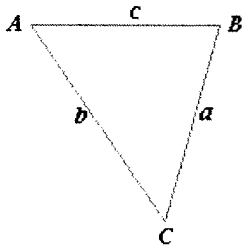
Write your answer in radians in terms of π.
If there is more than one solution, separate them with commas.

13. Consider a triangle ABC like the one on the right. If $a = 27$, $b = 38$, and $c = 34$, find A, B, and C. In other words, solve the triangle. Put answers in the degree measure to the nearest hundredth.



14. Consider a triangle ABC like the one below. Suppose that $A = 53°$, $C = 82°$, and $b = 18$. (The figure is not drawn to scale.) Solve the triangle.

Round your answers to the nearest tenth.



15. Given the data (15,130),(25,115),(35,130),(45,145),(55,130),

Find: The sine regression.

Find the period, amplitude, and phase shift.

16. Graph one period.

Tell me for all x when y will be 125.