Accelerated Algebra 2
Unit 6 SpringBoard Review

Answers

1) Identify all the possible values of θ, where $-360° \leq \theta \leq 360°$, that has the following coordinates:

a) $\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$ $300°, -60°$

b) $\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$ $225°, -135°$

c) $(-1, 0)$ $180°, -180°$

2) Evaluate the following:

a) $\tan(300°)$ $-\sqrt{3}$

b) $\csc\left(\frac{5\pi}{6}\right)$ 2

c) $\sec\left(-\frac{5\pi}{3}\right)$ 2

d) $\cot(-540°)$ undefined

3) Convert 660° to radians.

$11\pi/3$

4) Convert $\frac{9\pi}{4}$ to degrees.

$405°$

5) When the plane had flown 4,150 feet from the airport where it had taken off, it had covered a horizontal distance of 3,660 feet. What is the angle at which the plane rose from the ground to the nearest degree?

6) Evaluate $Tan^{-1}\left(\frac{-\sqrt{3}}{3}\right)$. $-\pi/6$

7) Find all the possible values of $sin^{-1}(\frac{-\sqrt{2}}{2})$.

$\frac{7\pi}{4} + 2\pi n$ and $\frac{5\pi}{4} + 2\pi n$ where n is an integer.

8) The distance y in feet of the tide from the lifeguard station can be modeled by: $y = -4\cos\left(\frac{\pi}{4}x\right) + 6$, where x is the number of hours after noon.

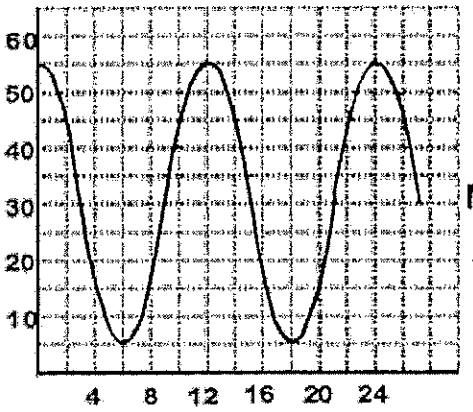
a) Graph one period.

b) Identify the following features of the graph. What does it represent in the context of the problem?

Amplitude 4 ft
Midline $y = 6$ ft
Minimum 2 ft
Maximum 10 ft
Period 8 hours

9) Identify the transformations and graph $y = -3\cos\left(6x + \frac{3\pi}{2}\right) - 5$

10) Write a sine and cosine function given the graph below.



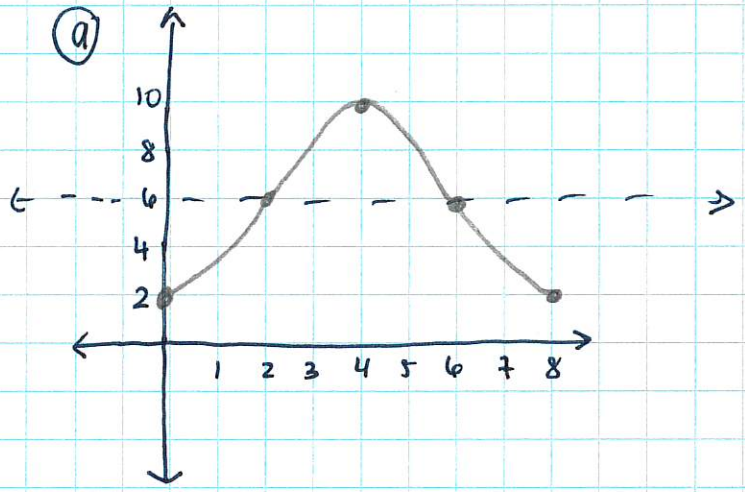
A: 25
Mid: $y = 30$
$p = 12$
$b = \pi/6$

$y = 25\cos\left(\frac{\pi}{6}x\right) + 30$

$y = 25\sin\left(\frac{\pi}{6}(x - 9)\right) + 30$

#8 $y = -4\cos\left(\frac{\pi}{4}x\right) + 6$

(a)



$p = 8$

(b) Amplitude – half the change in tide between high tide and low tide

Midline – the average tide distance from the life gaurd tower

Minimum – the shortest distance of tide to tower

Maximum – the furthest distance from tide to tower

Period – the amount of time between 2 high tides

9. $y = -3\cos(6x + \frac{3\pi}{2}) - 5$

$y = -3\cos 6(x + \frac{\pi}{4}) - 5$

Reflected across the x-axis

Amplitude of 3

Frequency of 6 ($P = \pi/3$)

phase shift of $-\pi/4$

vertical shift down 5