

Question 1:

(a)[3 points] Convert $5\pi/12$ radians to degrees.

(b)[3 points] Convert -215° to radians.

(c)[4 points] The minute hand of a clock is 15 cm long. How far (i.e. through what length of arc) does the tip of the minute hand travel in 4 hours and 20 minutes?

Question 2:

(a)[3 points] If $\cos t = 3/10$ find all possible values of $\sin t$.

(b)[3 points] Find the exact value of $\sin(17\pi/6)$.

(c)[4 points] Find all angles θ such that $0 \leq \theta < 2\pi$ and $\sin \theta = -1/2$.

Question 3:

(a)[7 points] Carefully graph

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

Indicate the scale on the x and y axes and label your graph.

(b)[3 points] State the amplitude, period and phase-shift of the trigonometric function from part (a).

Question 4:

(a)[3 points] Find $\sec(29\pi/4)$.

(b)[4 points] If $\cos x = -1/\sqrt{5}$ where $\pi < x < 3\pi/2$, what is $\tan x$?

(c)[3 points] Simplify

$$\frac{\cot \theta}{\cos \theta} - \csc \theta$$

Question 5:

(a)[3 points] Find $\cos(393\pi)$

(b)[3 points] Find $\tan(405\pi/2)$

(c)[4 points] If $\sin(k\pi/3) < 0$ where k is a positive integer which is less than 5, what must be $\cos(k\pi/3)$?