Trig Angles and Trig Ratios Review

Question #1

Determine a positive and negative co-terminal angle for each of the following:

(a) $\dfrac{2\pi}{4}$

(b) $212°$

(c) $\dfrac{6\pi}{7}$

Question #2

Determine the central angle formed by an arc length of 28 mm in a circle with a diameter of 1.7 cm. Express your answer in approximate radian measure and in degrees, correct to one decimal place.

Question #3

Given a point on the terminal arm of angle θ, determine the 3 primary trig ratios in exact radical form. Also determine the measure of angle θ in approximate radian measure and in degrees, correct to one decimal place.

(a) P(2,-6)

(b) P (-3, -2)

(c) P (-8,1)

Question #4

Evaluate (determine the trig ratio), leaving all answers in exact radical form:

(a) $\csc(-120°)$

(b) $\tan(330°)$

(c) $\cos(585°)$

Question #5

Determine all possible values for θ, such that $0 \le \theta \le 2\pi$. Give answer in exact radian measure, when possible.

(a) $\sin\theta = \dfrac{-\sqrt{3}}{2}$

(b) $\sec\theta = -\sqrt{2}$

(c) $\tan\theta = \dfrac{\sqrt{3}}{3}$

Question #6

Determine all possible values for θ, such that $-2\pi \le \theta \le 2\pi$. Give answers in exact radian measure, when possible.

(a) $\sin\theta = \dfrac{-\sqrt{3}}{2}$

(b) $\sec\theta = -\sqrt{2}$

(c) $\tan\theta = \dfrac{\sqrt{3}}{3}$

Question #7

Determine all possible values for θ, such that $0 \le \theta \le 2\pi$. Give answers in approximate radian measure, correct to one decimal place.

(a) $\cos\theta = \dfrac{-2}{5}$

(b) $\csc\theta = \dfrac{5}{2}$

(c) $\cot\theta = \dfrac{\sqrt{5}}{3}$

Answers

#1 (a) $\dfrac{5\pi}{2}, \dfrac{-3\pi}{2}$ (b) $572°, -148°$ (c) $\dfrac{20\pi}{7}, \dfrac{-8\pi}{7}$

#2 3.3 rads, 188.7°

#3 (a) $\sin\theta = \dfrac{-3\sqrt{10}}{10}, \cos\theta = \dfrac{\sqrt{10}}{10}, \tan\theta = -3, \theta = 244.8° \text{ or } \theta = 5.0 \text{ rads}$

(b) $\sin\theta = \dfrac{-2\sqrt{13}}{13}, \cos\theta = \dfrac{-3\sqrt{13}}{13}, \tan\theta = \dfrac{2}{3}, \theta = 213.7° \text{ or } \theta = 3.7 \text{ rads}$

(c) $\sin\theta = \dfrac{\sqrt{65}}{65}, \cos\theta = \dfrac{-8\sqrt{65}}{65}, \tan\theta = -\dfrac{1}{8}, \theta = 172.9° \text{ or } \theta = 3.0 \text{ rads}$

#4 $\csc(-120) = \dfrac{-2\sqrt{3}}{3}, \tan(330) = \dfrac{-\sqrt{3}}{3}, \cos(585) = \dfrac{-\sqrt{2}}{2}$

#5 (first two answers) and #6 (all four answers)

(a) $\dfrac{5\pi}{3}, \dfrac{4\pi}{3}, \dfrac{-\pi}{3}, \dfrac{-2\pi}{3}$ (b) $\dfrac{3\pi}{4}, \dfrac{5\pi}{4}, \dfrac{-5\pi}{4}, \dfrac{-3\pi}{4}$ (c) $\dfrac{\pi}{6}, \dfrac{7\pi}{6}, \dfrac{-11\pi}{6}, \dfrac{-5\pi}{6}$

#7 (a) 1.98 rads, 4.30 rads (b) 0.41 rads, 2.73 rads (c) 0.93 rads, 4.07 rads