

Extra Practice Worksheet 10.2

Name _____

1. Solve for x in the interval $[0, 2\pi)$.

$$\cot x \cos^2 x = 2 \cot x$$

2. Find all solutions.

$$2\csc^2 x + 3 \cot x - 4 = 0$$

3. Find the exact value.

a. $\sin \frac{10\pi}{3}$

b. $\tan^{-1}(-1)$

c. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

d. $\cot(5\pi)$

e. $\csc(\sin^{-1}(-1))$

f. $\cos^{-1}\left(\cos\left(\frac{5\pi}{4}\right)\right)$

4. Find $\csc \theta$ if $\tan \theta = -\frac{7}{3}$ and $\sec \theta > 0$.

5. Convert the rectangular coordinates to polar.

Give all answers on the interval $[0, 2\pi)$

$(-4, -5)$

Extra Practice Worksheet 10.2

Name _____

1. Solve for x in the interval $[0, 2\pi)$.

$$\cot x \cos^2 x = 2 \cot x$$

$$\cot x \cos^2 x - 2 \cot x = 0$$

$$\cot x (\cos^2 x - 2) = 0$$

$$\cot x = 0$$

$$\cos^2 x - 2 = 0$$

$$\frac{\cos x}{\sin x} = 0$$

$$\cos^2 x = 2$$

$$\cos x = 0$$

$$\cos x = \pm\sqrt{2}$$



$$\boxed{\frac{\pi}{2}, \frac{3\pi}{2}}$$

3. Find the exact value.

a. $\sin \frac{10\pi}{3}$



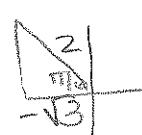
$$\boxed{-\frac{1}{2}}$$

b. $\tan^{-1}(-1)$



$$\boxed{-\frac{\pi}{4}}$$

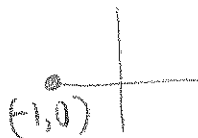
c. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$



$$\boxed{\frac{5\pi}{6}}$$

d. $\cot(5\pi)$

$$\frac{-1}{0}$$



$$\boxed{\text{und}}$$

e. $\csc(\sin^{-1}(-1))$

$$\csc\left(-\frac{\pi}{2}\right)$$



$$\frac{1}{\sin\left(-\frac{\pi}{2}\right)} = \frac{1}{-1}$$

$$\boxed{-1}$$

f. $\cos^{-1}\left(\cos\left(\frac{5\pi}{4}\right)\right)$

$$\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$$



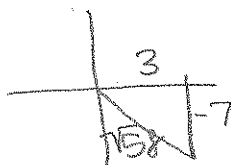
$$\boxed{\frac{3\pi}{4}}$$

4. Find $\csc \theta$ if $\tan \theta = -\frac{7}{3}$ and $\sec \theta > 0$.

$$-\tan \quad 2, 4$$

$$+\sec \quad 1, 4$$

$$\boxed{-\frac{\sqrt{58}}{7}}$$



$$49 + 9 = x^2$$

$$58 = x^2$$

2. Find all solutions.

$$2\csc^2 x + 3\cot x - 4 = 0$$

$$2(1 + \cot^2 x) + 3\cot x - 4 = 0$$

$$2 + 2\cot^2 x + 3\cot x - 4 = 0$$

$$2\cot^2 x + 3\cot x - 2 = 0$$

$$\text{Let } y = \cot x$$

$$2y^2 + 3y - 2 = 0$$

$$(2y - 1)(y + 2) = 0$$

$$\cot x = \frac{1}{2}$$

$$\cot x = -2$$

$$\tan x = 2$$

$$\tan x = -\frac{1}{2}$$



$$1.107$$

$$4.249$$



$$2.679$$

$$5.82$$

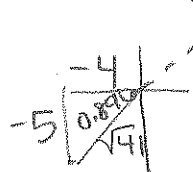
$$\boxed{1.107 + n\pi}$$

$$\boxed{2.679 + n\pi}$$

5. Convert the rectangular coordinates to polar.

Give all answers on the interval $[0, 2\pi)$

$$(-4, -5)$$



$$r^2 = 25 + 16$$

$$r^2 = 41$$

$$\tan \theta = \frac{-5}{-4}$$

$$\boxed{(\sqrt{41}, 4.038)}$$

$$\boxed{(-\sqrt{41}, 0.896)}$$