

Name _____

- No calculators allowed.
- Show sufficient work to justify each answer.
- You have 12 minutes for this quiz.

1. (3 points) Suppose that $f(x) = \sqrt{9-x}$ and $g(x) = 5 + \sqrt{2x-6}$. What is the domain of the composite function $(f \circ g)(x)$?

$$(f \circ g)(x) = f(g(x))$$

$$= f(5 + \sqrt{2x-6})$$

$$= \sqrt{9 - (5 + \sqrt{2x-6})}$$

$$= \sqrt{4 - \sqrt{2x-6}}$$

$$2x - 6 \geq 0$$

$$2x \geq 6$$

$$x \geq 3$$

$$4 - \sqrt{2x-6} \geq 0$$

$$4 \geq \sqrt{2x-6}$$

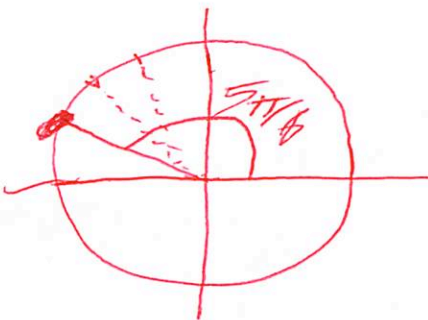
$$16 \geq 2x-6$$

$$22 \geq 2x$$

$$11 \geq x$$

DOMAIN $3 \leq x \leq 11$
or $[3, 11]$

2. (2 points) Evaluate the quantity $\csc(5\pi/6)$.



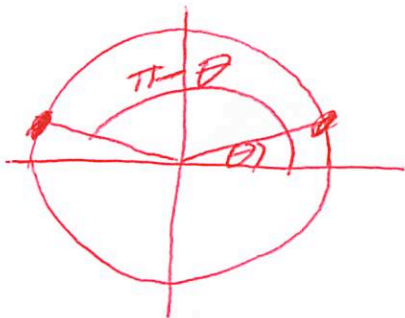
UNIT CIRCLE

$$\csc\left(\frac{5\pi}{6}\right) = \frac{1}{\sin\left(\frac{5\pi}{6}\right)}$$

$$= \frac{1}{1/2}$$

$$= 2$$

3. (2 points) There is an angle θ for which $\cos \theta \approx 0.927$, $\sin \theta \approx 0.375$ and $\tan \theta \approx 0.404$.
What is the value of $\cos(\pi - \theta)$?



UNIT
CIRCLE

$$\cos(\pi - \theta) = -\cos(\theta)$$

~~scribble~~

$$= -0.927$$

4. (3 points) Carefully sketch a graph of the function $f(x) = 7 - 3 \cos x$ on the interval $[0, 2\pi]$.

