Quiz 1, Math 1060–003
August 30, 2013

The quiz will last fifteen (15) minutes. Each question is worth one point – therefore there is no partial credit. You must show your work to receive credit. Please write your answer to Question #1 on the first line, Question #2 on the second line, and so on. Use the correct units – either degrees (°) or radians (rad or rads) – when writing your answer.

Name: Key

1. (1 point) Convert 1 rad to degrees. (Hint: Recall that 2π rads $= 360°$.)

$$\frac{2\pi \text{ rads}}{2\pi} = \frac{360°}{2\pi}$$

$$1 \text{ rad} = \frac{180°}{\pi}$$

1. $\frac{180°}{\pi}$

2. (1 point) Convert 1° to radians. (Hint: See the previous hint.)

$$\frac{360°}{360} = \frac{2\pi \text{ rads}}{360}$$

$$1° = \frac{\pi}{180} \text{ rads}$$

2. $\frac{\pi}{180}$ rads

3. (1 point) Convert $\frac{\pi}{6}$ rads to degrees.

$$\frac{\pi}{6} \text{ rads} = \frac{\pi}{6} \cdot (1 \text{ rad})$$

$$= \frac{\pi}{6} \cdot \frac{180°}{\pi}$$

$$= 30°$$

3. $30°$

4. (1 point) Convert $45°$ to radians.

$$45° = 45 \cdot (1°)$$
$$= 45 \cdot \left(\frac{\pi}{180} \text{ rads}\right)$$
$$= \frac{5\pi}{20} \text{ rads}$$
$$= \frac{\pi}{4} \text{ rads}$$

$$\frac{45}{180} = \frac{5}{20} = \frac{1}{4}$$

4. $\frac{\pi}{4}$ rads

5. (1 point) Convert $60°$ to radians.

$$60° = 60 \cdot (1°)$$
$$= 60 \cdot \left(\frac{\pi}{180} \text{ rads}\right)$$
$$= \frac{6\pi}{18} \text{ rads}$$
$$= \frac{\pi}{3} \text{ rads}$$

5. $\frac{\pi}{3}$ rads

6. (1 point) Convert $\frac{\pi}{2}$ rads to degrees.

$$\frac{\pi}{2} \text{ rads} = \frac{\pi}{2} \cdot (1 \text{ rad})$$
$$= \frac{\pi}{2} \cdot \frac{180}{\pi}^{90} \,°$$
$$= 90°$$

6. $90°$