Conversion Practice – Unit Circle - Hon Geometry Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DEGREE and RADIANS INTRODUCTION**

**RADIAN AND DEGREE CONVERSION**

*If 360*$°$ *= 2π radians OR 180*$°$ *= π radians, then to convert between the angle measurements…*

**DEGREES to RADIANS:**

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**Example:**

**a) 40**$°$ **🡪  or 0.698 radians**

**b) 250**$°$ **🡪  or 4.363 radians**

**RADIANS to DEGREES:**

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**Example:**

**a) 🡪 **

**b) 0.5 🡪 **

**CONVERSION PRACTICE:**

**(1) Convert the degree of the angle to radian measure (round to 3 decimal places)**

**1a. 31**$°$

**1b. 147**$°$

**1c. 293**$°$

**1d. 630**$°$

**1e. 434**$°$

**1f. -225**$°$

**(2) Convert the degree of the angle to exact radian measure (π as a symbol and fractions)**

**2a. 35**$°$

**2b. 160**$°$

**2c. -15**$°$

**2d. 660**$°$

**2e. 434**$°$

**2f. - 10**$°$

**(3) Convert the radian measure to degrees (round to 3 decimal places)**

**3a. 1.4**

**3b. 0.33**

**3c. 0.68**

**3d. 6.56**

**3e. 5.8**

**3f. 9**

**(4) Convert the radian measure to exact degree.**

**4a. **

**4b. **

**4c. **

**4d. **

**4e. **

**4f. **

**CIRCLE and ANGLES:**

**Angles of a circle are measured from starting on the positive portion of the x-axis.**

* **POSITIVE Angle Measures 🡪 COUNTER CLOCKWISE Rotation**
* **NEGATIVE Angle Measures 🡪 CLOCKWISE Rotation**

**DEGREE:**

**360**$°$ **is the angle measure of a circle**

**RADIANS:**

**2π radians is the angle measure of a circle**

**COTERMINAL ANGLES: Angles that have same location in a circle.**

* *Coterminal angles differ by addition or subtraction multiple of 360*
* Example: 120$°$, - 240$°$, 480$°$ are all coterminal. (120$°$ – 360$°$ = -240$°$; 120$°$ + 360$°$ = 480$°$)

**I. Define the intervals in DEGREE measure for each quadrant of the coordinate plane.** (See Below Circle)

**Quadrant I: \_\_\_\_\_\_\_\_\_\_ Quadrant II: \_\_\_\_\_\_\_\_\_\_ Quadrant III: \_\_\_\_\_\_\_\_\_\_ Quadrant IV: \_\_\_\_\_\_\_\_\_\_**

**II. Label each given angle of the circle in EXACT RADIAN measure:**

Do you notice any pattern in denominators of the radians?

0$°$ = \_\_\_\_\_\_\_\_\_\_\_

30$° $ = \_\_\_\_\_\_\_\_\_\_\_

360$°$ = \_\_\_\_\_\_\_\_\_\_\_

90$°$ = \_\_\_\_\_\_\_\_\_\_\_

60$° $= \_\_\_\_\_\_\_\_\_\_\_

45$°$ = \_\_\_\_\_\_\_\_\_\_\_

330$°$ = \_\_\_\_\_\_\_\_\_\_\_

315$°$ = \_\_\_\_\_\_\_\_\_\_\_

300$°$ = \_\_\_\_\_\_\_\_\_\_\_

270$°$ = \_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_ = 240$°$

\_\_\_\_\_\_\_\_\_\_\_ = 120$°$

\_\_\_\_\_\_\_\_\_\_\_ = 135$°$

\_\_\_\_\_\_\_\_\_\_\_ = 150$°$

\_\_\_\_\_\_\_\_\_\_\_ = 180$°$

\_\_\_\_\_\_\_\_\_\_\_ = 210$°$

\_\_\_\_\_\_\_\_\_\_\_ = 225$°$

**III. Define the intervals in RADIAN angle measure for each quadrant of the coordinate plane.**

**Quadrant I: \_\_\_\_\_\_\_\_\_\_ Quadrant II: \_\_\_\_\_\_\_\_\_\_ Quadrant III: \_\_\_\_\_\_\_\_\_\_ Quadrant IV: \_\_\_\_\_\_\_\_\_\_**