SOLUTIONS

In-Class Assignment #8

Applied Mathematics for Electronics Engineering Technology

201-943-DW

November 9th 2012

In exercises 1 to 6, convert the degree measurement of the angle to radian measure to the **nearest hundredth of a radian.**

1) 31°	2) 147°	3) 293°	4) 630°	5) 434°	6) 169°
0.54	2.57	5.11	11.00	7.57	2.95

In exercises 7 to 12, convert the degree measurement of the angle to an **exact radian measure.**

7) 35°	8) 160°	9) 315°	10) 410°	11) 620°	12) 585°
$7\pi/36$	$8\pi/9$	$7\pi/4$	$41\pi/18$	$31\pi/9$	$13\pi/4$

In exercises 13 to 18, convert the radian measure to a measure in degrees to the **nearest hundredth of a degree.**

13) 1.2	14) 0.23	15) 0.6	16) 7.23	17) 5	18) 13
68.75°	13.18°	34.38°	414.25°	286.48°	744.85°

In exercises 19 to 24, convert the radian measure to the exact degree measurement.

19) $\pi/3$	20) $\pi/7$	21) $(5\pi)/8$	22) $(13\pi)/3$	24) 6π
60°	$180/7$°	112.5°	780°	1080°

In exercises 25 to 27, find the measure of the central angle **in both degrees and radians** with the given radius and arc length. $\theta = s/r$

25) r = 2cm, s = 8cm	26) r = 3m, s = 2m	27) r = 3.2mm, s = 5.4mm
$\theta = 4$, 229.18°	$\theta = 2/3$, 38.20°	$\theta = 1.6875$, 96.69°

In exercises 28 to 30, find the length of the arc length with the given central angle and radius. $s = \theta \cdot r$ (REMEMBER θ IS IN RADIANS!)

28) r = 2cm, $\theta = \pi/3$	29) r = 2.2cm, $\theta = (7\pi)/2$	30) r = 14cm, $\theta = 3\pi$
$s = 2\pi/3$ cm	$s = 7.7\pi$ cm	$s = 42\pi$ cm

BONUS QUESTIONS

The minute hand on a huge public clock measures 2.2 metres from the tip to the axle.

a. Through what angle does the minute hand pass between 8:07am and 8:43am?

b. What distance does the tip of the minute hand travel during this period?

a. 1 hour = 360°

36 minutes?

$$\frac{36}{60} = \frac{\theta}{360°}$$

$$\theta = 216°$$

b. $216°$ in radians: $\frac{6\pi}{5}$

$\theta = \frac{s}{r}$

$s = \theta \cdot r$

$= 6\pi/5 \cdot (2.2)$

$= 8.29$ m