W1 – 4.1 Radian Measure

MHF4U

- 1) Determine mentally the exact radian measure for each angle, given that 30° is exactly $\frac{\pi}{6}$ radians.
- a) 60°
- **b)** 90°
- **c)** 120°
- **d)** 150°
- 2) Determine mentally the exact radian measure for each angle, given that 30° is exactly $\frac{\pi}{6}$ radians.
- **a)** 15°
- **b)** 10°
- **c)** 7.5°
- **d)** 5°
- 3) Determine mentally the exact radian measure for each angle, given that 45° is exactly $\frac{\pi}{4}$ radians.
- **a)** 90°

b) 135°

c) 180°

- **d)** 225°
- 4) Determine mentally the exact radian measure for each angle, given that 45° is exactly $\frac{\pi}{4}$ radians.
- **a)** 22.5°

b) 15°

c) 9°

d) 3°

- **5)** Determine the EXACT radian measure for each angle
- a) 40°

b) 10°

c) 315°

d) 210°

e) 300°

f) 75°

Of Determine the Arrivo Annia is a radian measure, the hearest handreath, for each angle,	6) Determine the APPROXIMATE radian measure,	. the nearest hundredth.	for each angle.
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a) 23°

b) 51°

c) 82°

d) 128°

e) 240°

f) 330°

7) Determine the EXACT degree measure for each angle.

a) $\frac{\pi}{5}$

b) $\frac{\pi}{9}$

c) $\frac{5\pi}{12}$

d) $\frac{5\pi}{18}$

e) $\frac{3\pi}{4}$

f) $\frac{3\pi}{2}$

8) Determine the APPROXIMATE degree measure, to the nearest tenth, for each angle.

a) 2.34

b) 3.14

c) 5.27

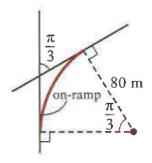
d) 7.53

e) 0.68

f) 1.72

9) A circle of radius 25 cm has a central angle of 4.75 radians. Determine the length of the arc that subtends
this angle.

- **10)** Two highways meet at an angle measuring $\frac{\pi}{3}$ radians, as shown. An on-ramp in the shape of a circular arc is to be built such that the arc has a radius of 80 m.
- a) Determine an EXACT expression for the length of the on-ramp.



b) Determine the length of the on-ramp, to the nearest tenth of a meter.

11) David made a swing for his niece Sarah using ropes 2.4 m long, so that Sarah swings through an arc length of 1.2 meters. Determine the angle through which Sarah swings, in both radians and degrees.