Radian Measure II (4.1) p175 day 2

HW: p175#7bd, 8ab

7. Determine one positive and one negative angle coterminal with each angle.

a) $72°$ b) $\frac{3\pi}{4}$

c) $-120°$ d) $\frac{11\pi}{2}$

e) $-205°$ f) 7.8

8. Determine whether the angles in each pair are coterminal. For one pair of angles, explain how you know.

a) $\frac{5\pi}{6}, \frac{17\pi}{6}$ b) $\frac{5\pi}{2}, -\frac{9\pi}{2}$

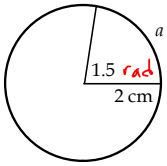
c) $410°, -410°$ d) $227°, -493°$

Radian Measure II (4.1) p175 day 2

$\frac{\pi}{6}$ 121°

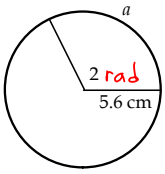
with radians it becomes easy to calculate an arc length...

ex1: Calculate the length of a



$a = 1.5\text{rad} \times \frac{2\text{cm}}{1\text{rad}}$

$= 3\text{cm}$



$a = 2\text{rad} \times \frac{5.6\text{cm}}{1\text{rad}}$

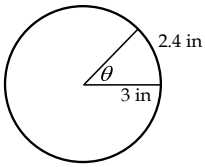
$= 11.2\text{cm}$

$$a = \theta \cdot r$$

arc length = angle x radius

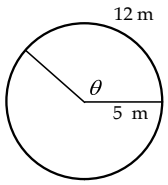
Radian Measure II (4.1) p175 day 2

ex2: Find the size of the angle



$\theta = \frac{2.4\text{in}}{3\text{in}}$

$= 0.8\text{rad}$



$\theta = \frac{12\text{m}}{5\text{m}}$

$\theta = 2.4\text{ rad}$

12ab

13ab

Radian Measure II (4.1) p175 day 2

ex3: The turbines at the Hermanville wind farm have a rotor diameter of 116 m. If a blade makes 1 full revolution in 4 seconds, how fast is the blade tip travelling in km/h?

$r = 58\text{m}$

$\frac{1\text{rad}}{4\text{s}} \times \frac{2\pi\text{rad}}{1\text{rev}} \times \frac{58\text{m}}{1\text{rad}} \times \frac{1\text{ km}}{1000\text{m}} \times \frac{3600\text{s}}{1\text{ h}}$

$= 328\text{ km/h}$

Radian Measure II (4.1) p175 day 2

$r = 30\text{cm}$

ex4: An automobile tire with a diameter of 60 cm turns 10 times per second. How far does a point on the tread travel in one minute?

$\frac{10\text{rev}}{1\text{s}} \times \frac{2\pi(30\text{cm})}{1\text{rev}} \times \frac{60\text{s}}{1\text{min}} = 113097\text{ cm/min}$

$\approx 1131\text{ m}$

How fast is the automobile traveling in km/h?

14ac

15bc

Radian Measure II (4.1) p175 day 2

HW: p175#16a, 22, 12cd, 13cd

worksheet# ??