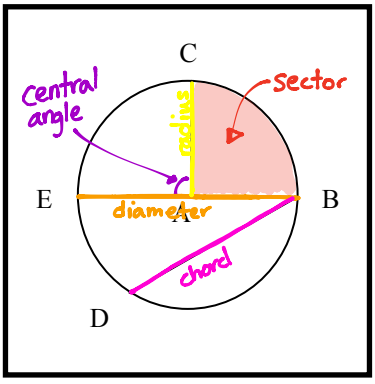
Name:_____ Date:_____ Section Lesson 13

Lesson 13 – Circles

Definition	Symbol
A __circle__ is the set of all points in a plane that are the same distance from a given point, (**center of a circle**)	⊙A Circle A
The part of the circle named by its endpoints is the __arc__.	$\overset{\frown}{CE}$ minor arc < 180° $\overset{\frown}{CBD}$ major arc >180°
A __radius__ is a line segment whose endpoints are the center of a circle and any point on the circle.	start from center $\overline{AB}, \overline{AC}, \overline{AE}$
A __diameter__ is line segment that passes through the center of a circle, and whose endpoints lie on the circle. (plural: radii)	$\overline{BE}$
A __chord__ is a line segment whose endpoints are any two points on a circle.	$\overline{BD}, \overline{BE}$
A __central angle__ of a circle is an angle formed by two radii (radius plural).	∠BAC, ∠CAE
A __sector__ of the circle is part of the circle enclosed by two radii and an arc connecting them.	shaded



Circumference: distance around a circle (regular units)

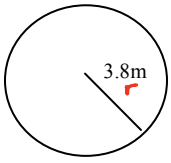
$C = \pi d$ or $C = 2\pi r$ $\quad * d = 2r$

Area: space covered inside a circle (units squared)

$A = \pi r^2$

Ex. 1: Find the circumference of each circle. Round to the nearest tenth.

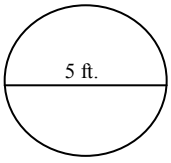
A.



$C = 2\pi r$
$= 2\pi(3.8)$
$= 2(3.8)\pi$
$= \boxed{7.6\pi \text{ m}}$

$C = 2\pi r$
$= 2(3.14)(3.8)$
$\approx 7.6(3.14)$
$\approx \boxed{23.86 \text{ m}}$

B.

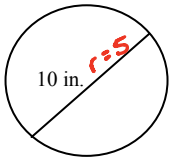


$C = \pi d$
$= \pi(5)$
$= \boxed{5\pi \text{ ft}}$

$C = \pi d$
$= (3.14)(5)$
$\approx \boxed{15.7 \text{ ft}}$

Ex. 2: Find the area of each circle. Round to the nearest tenth.

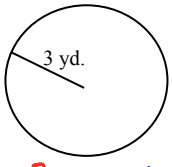
A.



$A = \pi r^2$
$= \pi(5)^2$
$= \boxed{25\pi \text{ in}^2}$

$A = \pi r^2$
$= (3.14)(5)^2$
$= (3.14)(25)$
$\approx \boxed{78.5 \text{ in}^2}$

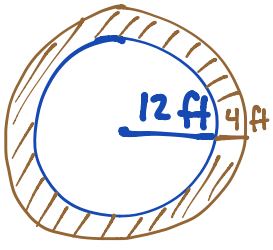
B.



$A = \pi r^2$
$= \pi(3)^2$
$= \boxed{9\pi \text{ yd}^2}$

$A = \pi r^2$
$= (3.14)(3)^2$
$= (3.14)(9)$
$= \boxed{28.3 \text{ yd}^2}$

Ex. 3: The Patels have a circular pool with a radius of 12 feet. They plan on installing a 4-foot-wide walkway around the pool. What will be the area of the walkway?



$A_W = A_T - A_P$
$= \pi r^2 - \pi r^2$
$= \pi(16)^2 - \pi(12)^2$
$= 256\pi - 144\pi$
$= 112\pi$
$= 112(3.14)$
$\approx \boxed{351.68 \text{ ft}^2}$

HW: GM7 p. 804 (2-28 even)