Geometry Unit B Part 1: Circles and Composite Area

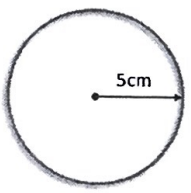
Name Key Class

Part 1: Circles. SHOW ALL WORK.

Formula for AREA of a circle: $A = \pi r^2$

Formula for CIRCUMFERENCE: $C = \pi d$ or $C = 2\pi r$

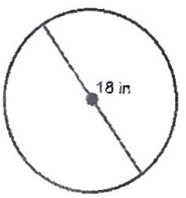
1.



Radius = 5cm

Diameter = 10cm

2.



Radius = 9in

Diameter = 18in

A = $\pi(5)^2$
$= 78.54 cm^2$

C = $\pi(10)$
$= 31.4 cm$

A = $\pi(9)^2$
$= 254.47 in^2$

C = $\pi(18)$
$= 56.55 in$

3. 9.4 mm DIAMETER

Radius = 4.7mm

Diameter = 9.4mm

Area = $\pi(4.7)^2$
$= 69.40 mm^2$

Circumference = $\pi(9.4)$
$= 29.53 mm$

4. 3.4 ft. radius

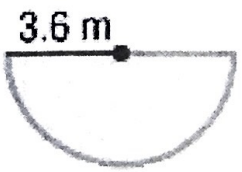
Radius = 3.4 ft

Diameter = 6.8 ft

Area = $\pi(3.4)^2$
$= 36.32 ft^2$

Circumference = $\pi(6.8)$
$= 21.36 ft$

5. Find the area of the half-circle. **SHOW ALL WORK.**



A = πr^2 for a full circle
$= \pi(3.6)^2$
$= 40.72$ ← need a half circle, so divide by 2
$\div 2$
$20.36 m^2$

5. **A pizza has a diameter of 8 inches. Find the area and circumference. Show all work.**

$d = 8$ in so $r = 4$ in

$A = \pi r^2$
$= \pi(4)^2$
$= 50.27 \text{ in}^2$

$C = \pi d$
$= \pi(8)$
$= 25.13$ in

6. **The radius of a birthday cake is 5 cm. Icing will decorate the circumference of the cake. How much icing is needed?** $r = 5$cm, so $d = 10$cm

$C = \pi d$
$C = \pi(10)$
$C = 31.4$cm

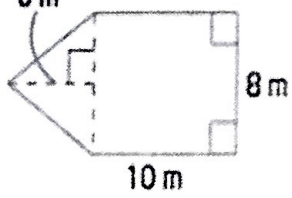
7. **An area rug has a diameter of 6 feet. How many square feet will the rug cover?**

$d = 6$ft, so $r = 3$ft
$A = \pi r^2$
$A = \pi(3)^2$
$A = 28.27 \text{ ft}^2$

Part 2: Composite Figures

Instructions: Find the area of the shape. Make sure to include your units and circle your answer. **(ADD THE AREAS)**

6.



$A = \frac{(b)(h)}{2}$

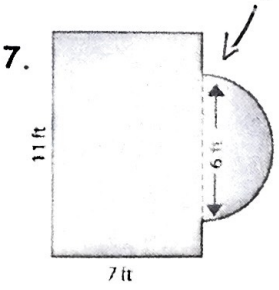
$A = (\ell)(w)$

$\triangle = \frac{(8)(6)}{2} = \frac{48}{2}$
$A = 24 \text{m}^2$

$\square = (8)(10)$
$= 80 \text{m}^2$

24
$A = +80$
104m^2

7.



$A = \pi(r)(r)$

$A = (\ell)(w)$

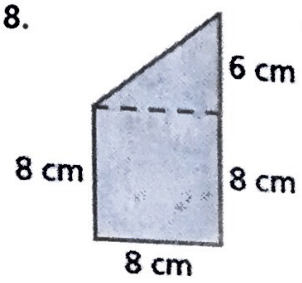
full circle
$= \pi(3)^2$
$= 28.27 \text{ ft}^2$

$\square = (11)(7)$
$= 77 \text{ ft}^2$

14.14
$A = +77$
91.14 ft^2

Half circle $= 28.27 \div 2 = 14.14$ ft

8.

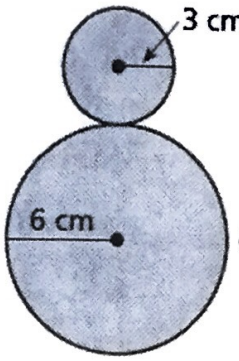


$\triangle = \frac{1}{2}(8)(6)$
$= \frac{1}{2}(48)$
$= 24\text{cm}^2$

$\square = (8)(8)$
$= 64\text{cm}^2$

$$A = \begin{array}{r} 24 \\ +64 \\ \hline 88\text{cm}^2 \end{array}$$

9.



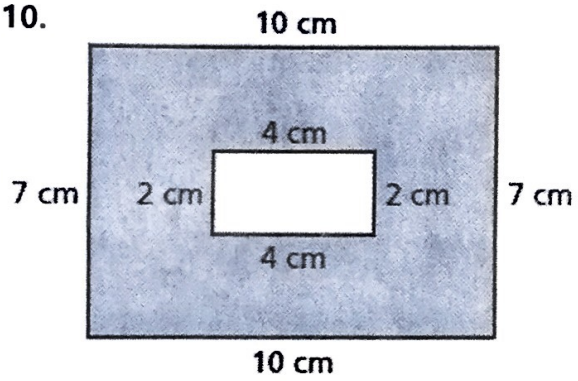
$A = \pi r^2$
$= \pi(3)^2$
$= 28.27\text{cm}^2$

$A = \pi r^2$
$= \pi(6)^2$
$= 113.1\text{cm}^2$

$$A = \begin{array}{r} 28.27 \\ +113.1 \\ \hline 141.37\text{cm}^2 \end{array}$$

Shaded Areas: Find the area of the SHADED REGIONS. (SUBTRACT AREAS.)

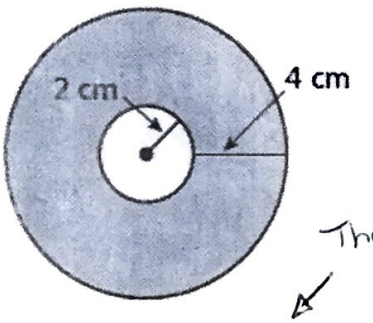
10.



Bigger $\square = (7)(10) = 70\text{cm}^2$
Smaller $\square = (2)(4) = 8\text{cm}^2$

$$A = \begin{array}{r} 70 \\ -8 \\ \hline 62\text{cm}^2 \end{array}$$

11.



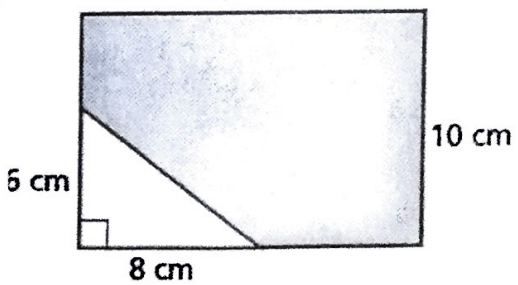
The bigger circle has $r = 6$ because $4+2=6$

Bigger $= \pi r^2$
$= \pi(6)^2$
$= 113.1\text{cm}^2$

Smaller $= \pi r^2 = \pi(2)^2 = 12.57\text{cm}^2$

$A = 113.1 - 12.57 = 100.53\text{cm}^2$

12.



$\square = (15)(10) = 150\text{cm}^2$
$\triangle = \frac{1}{2}(8)(6) = \frac{1}{2}(48) = 24\text{cm}^2$

$$A = \begin{array}{r} 150 \\ -24 \\ \hline 126\text{cm}^2 \end{array}$$

Other topics on the test:

(1) Word Problems

Such as: Elle is putting a ribbon around a circular box. The box has a radius of 4.5in. How much ribbon does she need?

"Around" means circumference, so $C = 2\pi r$

$C = 2\pi(4.5)$

$C = 28.27$ in

(2) Finding PARTS of formulas. Such as:

A barrel has a circumference of 113.1 cm. Find the diameter.

$C = \pi d$

If $c = 113.1$, then:

$113.1 = \pi d$ (3.14)

$\frac{113.1}{3.14} = \frac{(3.14)d}{3.14}$

$36.02 = d$

36.02 cm