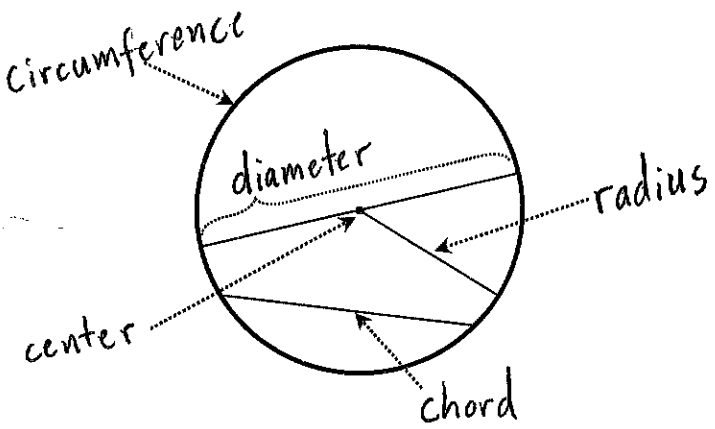
Name KEY Date

Geometry – Circumference and Area of Circles

1) Name the parts of the circle



2) Complete the following:

$\sqrt{1} =$ 1 $\sqrt{64} =$ 8

$\sqrt{4} =$ 2 $\sqrt{81} =$ 9

$\sqrt{9} =$ 3 $\sqrt{100} =$ 10

$\sqrt{16} =$ 4 $\sqrt{121} =$ 11

$\sqrt{25} =$ 5 $\sqrt{144} =$ 12

$\sqrt{36} =$ 6 $\sqrt{169} =$ 13

$\sqrt{49} =$ 7 $\sqrt{196} =$ 14

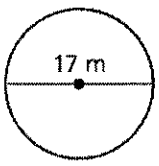
Complete the following:

3) To find the circumference of a circle, you would use the formula $d\pi$ or $2r\pi$.

4) To find the area of a circle, you would use the formula πr^2.

Find the circumference of the circle. Use 3.14 or $\frac{22}{7}$ for π.

5)



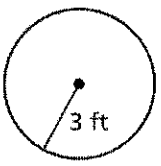
$C = d\pi$

$C = 17\pi$

$C = 17(3.14)$

$C = 53.38\text{ m}$

6)



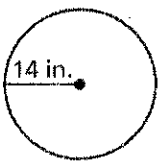
$C = 2r\pi$

$C = 2 \cdot 3 \cdot \pi$

$C = 6(3.14)$

$C = 18.84\text{ ft}$

7)



$C = 2\pi r$

$C = 28(3.14)$

$C = 87.92\text{ in}$

Find the perimeter of the semicircular region.

8)

$C = d\pi$

$C = \frac{22(3.14)}{2}$

$C = 34.54\text{mm}$

9)

$C = 2r\pi$

$C = \frac{8(3.14)}{2}$

$C = 12.56\text{in}$

Complete the following. Show all algebraic work.

10) Find the circumference of a circular hot tub that has a diameter of 12 feet.

$C = d\pi$

$C = 12(3.14)$

$C = 37.68\text{ ft}$

11) Find the circumference of a circle that has a *radius* of 4.5 feet.

$C = 2r\pi$

$C = 9(3.14)$

$C = 28.26\text{ ft}$

12) Find the circumference of a circle that has a diameter of 6.2 feet.

$C = d\pi$

$C = 6.2(3.14)$

$c = 19.468\text{ ft}$

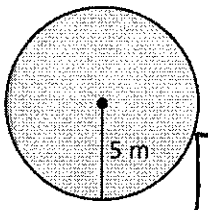
13) Find the *diameter* of a circle that has a circumference of 25.12 ft.

$C = d\pi$

$\frac{25.12}{3.14} = \frac{3.14d}{3.14}$

$d = 8\text{ ft}$

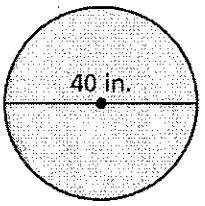
Find the area for the following. Use 3.14 or $\frac{22}{7}$ for π.

14) 

$A = \pi r^2$

$A = 3.14 \cdot 5^2$

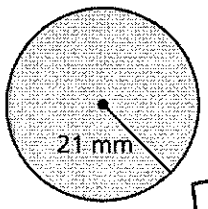
$A = 78.5 m^2$

15) 

$r = 20 in$

$A = 3.14 \cdot 20^2$

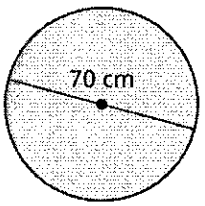
$A = 1,256 in^2$

16) 

$A = \pi r^2$

$A = 3.14 \cdot 21^2$

$A = 1384.74 mm^2$

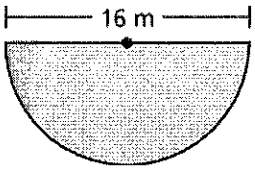
17) 

$r = 35 cm$

$A = \pi r^2$

$A = 3.14 \cdot 35^2$

$A = 3,846.5 cm^2$

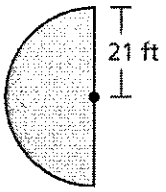
18) 

$A = \pi r^2$

$A = 3.14 \cdot 8^2$

$A = \frac{200.96}{2}$

$A = 100.48 m^2$

19) 

$A = \pi r^2$

$A = \frac{3.14 \cdot 21^2}{2}$

$A = 692.37 ft^2$

Complete the following. Show all algebraic work.

20) What is the radius of a circle whose area is 254.34 cm^2?

$A = \pi r^2$

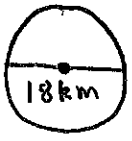
$\frac{254.34}{3.14} = \frac{3.14 r^2}{3.14}$

$81 = r^2$

$r = \sqrt{81}$

$r = 9 cm$

21) What is the area of a circular region with a diameter of 18 kilometers?



$r = 9 km$

$A = \pi r^2$

$A = 3.14 \cdot 9^2$

$A = 254.34 km^2$

22) The area of Jason's cake plate is about 50.24 in^2. He places is 7-inch fork across the plate after eating. Can the fork fit on the plate without going over the edge? Show all work.

$A = \pi r^2$

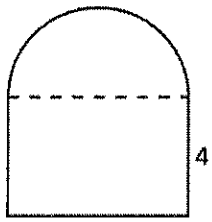
$\frac{50.24}{3.14} = \frac{3.14 \cdot r^2}{3.14}$

$16 = r^2$

$r = \sqrt{16}$ → $r = 4$ which means the diameter = 8in → $8 > 7$ so the fork will fit

Complete perimeter **and** area of the following regions.

23)



Perimeter

$P_{\square} = 2(6) + 2(4)$

$P_{\square} = 20\text{ft}$

$P_{\frown} = \frac{6 \cdot 3.14}{2} = 9.42\text{ft}$

total = 29.42ft

Area

$A_{\square} = bh$

$A_{\square} = 6 \cdot 4$

$A_{\square} = 24\text{ft}^2$

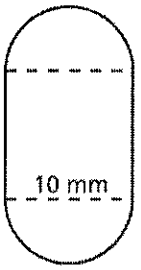
$A_{\frown} = \pi r^2$

$A_{\frown} = \frac{3.14 \cdot 3^2}{2}$

$A_{\frown} = 14.13\text{ft}^2$

$A\text{ total} = 24 + 14.13 = 38.13\text{ft}^2$

24)

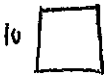


Perimeter of circle

→ $C = 10 \cdot 3.14$

$C = 31.4\text{ mm}$

Perimeter of square



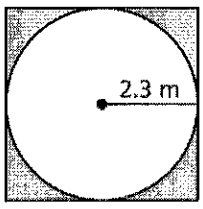
→ $P = 4s$

$P = 4(10) = 40\text{mm}$

total perimeter = 40 + 31.4 = 71.4mm

Find the area of the shaded region..

25)



diameter = 4.6

Area $\square$ = 4.6 · 4.6

$A_{\square} = 21.16\text{ m}^2$

$A_{\bigcirc} = 3.14 \cdot 2.3^2$

$A_{\bigcirc} = 3.14 \cdot 5.29$

$A_{\bigcirc} = 16.6106\text{ m}^2$

Shaded area = 21.16 − 16.6106

Shaded area = 4.5494 m^2

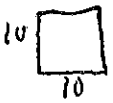
Area of circle

$r = 5$

$A = 3.14 \cdot 5^2$

$A = 78.5\text{ mm}^2$

Area of square



$A = bh$

$A = 10 \cdot 10$

$A = 100\text{ mm}^2$

total area = 78.5 + 100 = 178.5mm^2