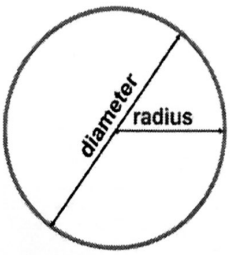
Name: KEY Period: _____

Area of a Circle

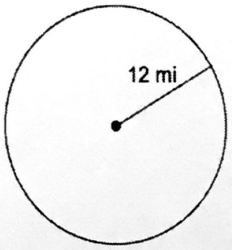
Area Formula: $A = \pi \cdot r^2$



Directions: Complete THREE levels. Round to the nearest hundredth if needed.

Level 1:

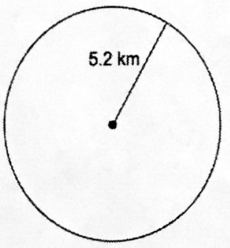
1. Find the area.



$A = \pi \cdot 12^2$

452.16 mi^2

2. Find the area.



$A = \pi \cdot 5.2^2$

84.91 km^2

3. The radius of a quarter is about ½ inch. What is the area of a quarter? (Use 3.14 for π.)

$A = \pi \cdot 0.5^2$

0.79 in^2

4. A dinner plate has a **diameter** of 12 inches. What is the plate's area? (Use 3.14 for π.)

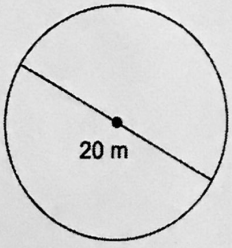
radius = 6

$A = \pi \cdot 6^2$

113.04 in^2

Level 2:

5. Find the area.

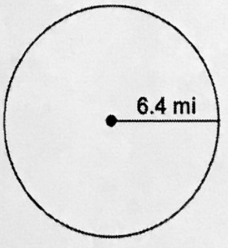


radius = 10 m

$A = \pi \cdot 10^2$

314 m^2

6. Find the area.



$A = \pi \cdot 6.4^2$

128.61 mi^2

7. Tommy's dog is on a 10-ft leash. If Tommy stands in one place, how much room does his dog have to move around? (Use 3.14 for π.)

radius = 10ft

$A = \pi \cdot 10^2$

314 ft^2

8. A circular garden has an area of 452.16 ft2. What is the **diameter** of the garden? (Use 3.14 for π.)

$A = \pi \cdot r^2$

$452.16 = 3.14 \cdot r^2$

Divide by 3.14 each side

$144 = r^2$

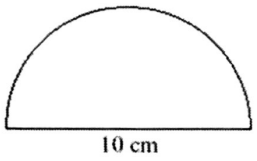
$r = 12$

Diameter is 2 · radius

$d = 24 \text{ ft}$

Level 3:

9. Find the area.



radius = 5cm

$A = \pi \cdot 5^2$

Half of a circle

$A = \frac{78.5}{2}$

$39.25 cm^2$

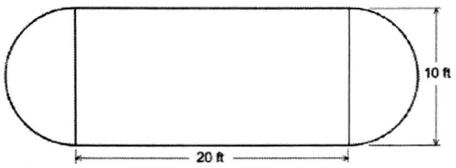
10. A frisbee has an area of 415.265 in^2. What is the frisbee's radius? (Use 3.14 for π.)

$415.265 = \pi \cdot r^2$ ← divide by 3.14 each side

$132.25 = r^2$

$r = 11.5$ in. ← square root each side

11. What is the total area of the figure below?



Rectangle + Circle = Total

Rectangle: $20 \cdot 10 = 200 ft^2$

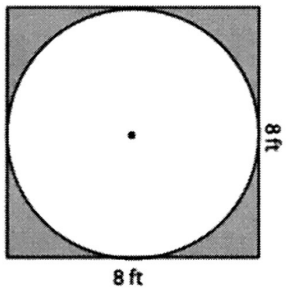
Circle: radius = 5

$A = \pi \cdot 5^2$

$= 78.5 ft^2$

$200 + 78.5 = 278.5 ft^2$

12. What is the area of the shaded region?



Square = $8 \cdot 8 = 64 ft^2$

Circle = radius = 4

$A = \pi \cdot 4^2$

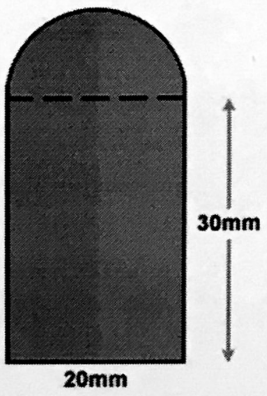
$= 50.24 ft^2$

Square − Circle

$64 - 50.24 = 13.76 ft^2$

Level 4:

13. What is the total area of the figure below?



Rectangle + ½ circle

Rectangle: $20 \cdot 30$

$600 mm^2$

Circle: radius = 10

$A = \pi \cdot 10^2$

(half circle) $= \frac{314 mm^2}{2}$

$600 mm^2 + 157 mm^2$

$757 mm^2$

14. A circular flower bed has a radius of 18 feet. If a bag of mulch covers 24 square feet, how many bags of mulch do you need to cover the entire flower bed? (Use 3.14 for π.)

$A = \pi \cdot 18^2$

$= 1017.36 ft^2$

$\frac{1017.36}{24} = 42.39$ bags

43 bags