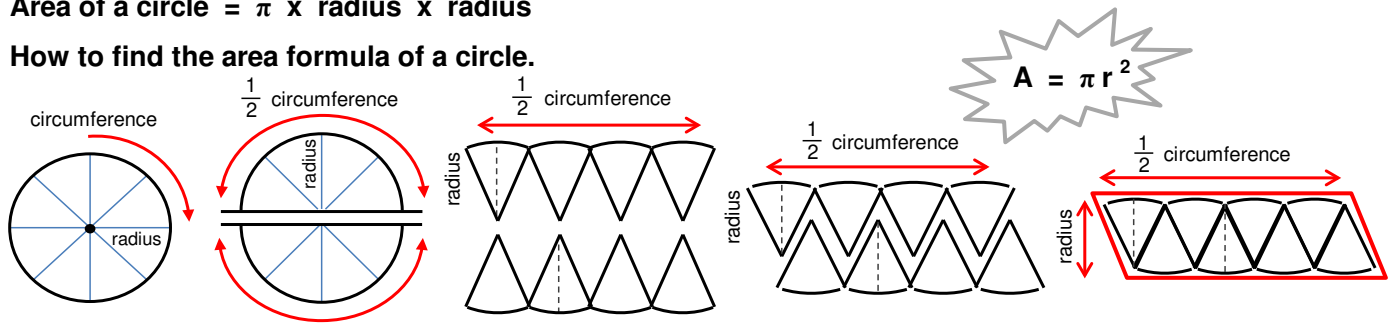


CIRCLES - AREA

ANSWERS

Area of a circle = $\pi \times \text{radius} \times \text{radius}$

How to find the area formula of a circle.



THE **CIRCUMFERENCE** OF A CIRCLE IS THE DISTANCE AROUND IT. THE **AREA** IS THE SPACE INSIDE THE CIRCLE.

WE CAN USE THE CIRCUMFERENCE AND OUR KNOWLEDGE OF QUADRILATERALS TO FIND THE AREA OF A CIRCLE.

WE CAN SEPARATE A CIRCLE IN HALF AND THEN PUT IT BACK TOGETHER TO FORM A PARALLELOGRAM (SHOWN ABOVE).

A PARALLELOGRAM WITH:
BASE = $\frac{1}{2}$ CIRCUMFERENCE
AND
HEIGHT = RADIUS

THE AREA OF A PARALLELOGRAM CAN BE FOUND BY MULTIPLYING THE BASE AND HEIGHT (BASE \times HEIGHT).

What does all this mean?

Area of a parallelogram = base \times height = $\frac{1}{2} \times \text{circumference} \times \text{radius}$ = Area of a circle

circumference = $2 \times \text{radius} \times \pi$ (substitute into equation)

Area of a circle = $\frac{1}{2} \times (2 \times \text{radius} \times \pi) \times \text{radius}$

If you combine like terms you will get:

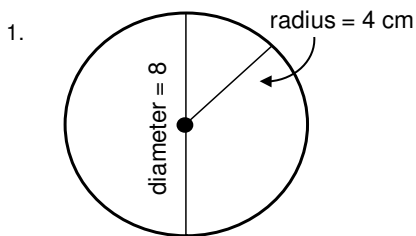
Area of a circle = $\frac{1}{2} \times 2 \times \pi \times \text{radius} \times \text{radius}$

Area = $\pi \times \text{radius}^2$

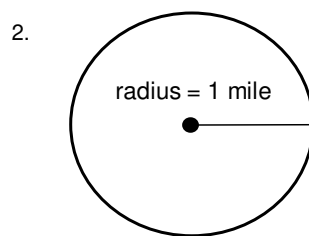
$\pi = 3.141592653589...$
or approximately 3.14

Now your turn. Use the area formula to find the area of each circle.

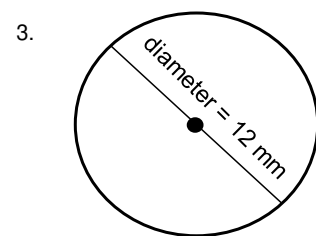
Use $\pi = 3.14$



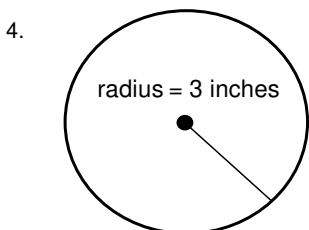
Area = 50.24 cm²



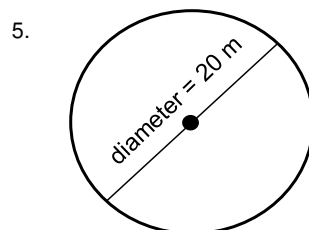
Area = 3.14 miles²



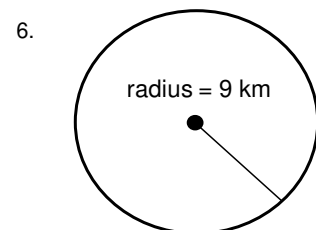
Area = 113.04 mm²



Area = 28.26 in²



Area = 314 m²



Area = 254.34 km²