Mathematics

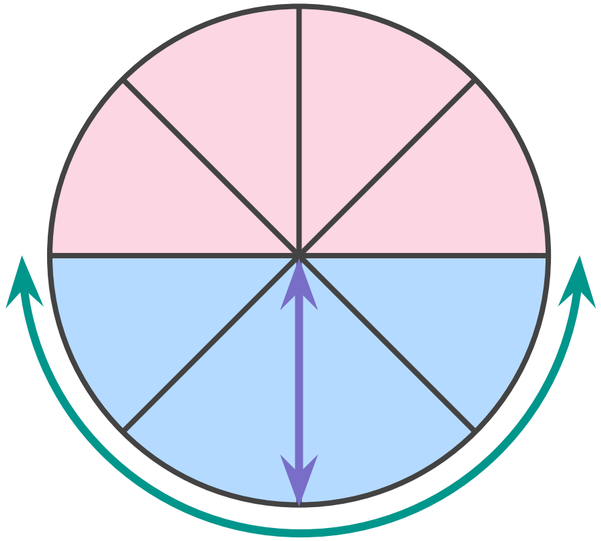
Finding a formula

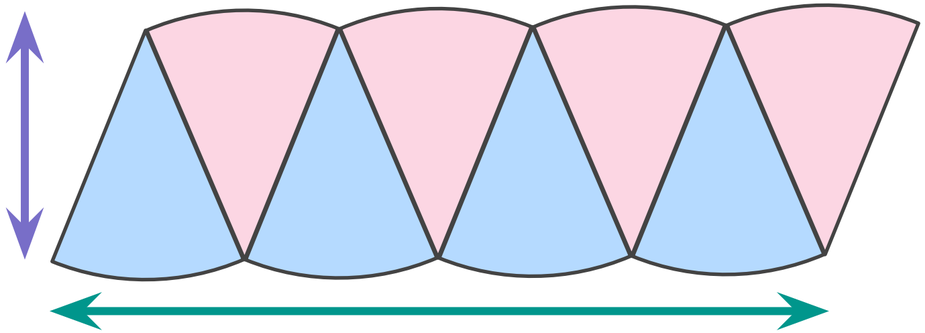
Mr Coward

Try this

How can you describe how to find the area of a circle?

What's the same and what's different about these students' responses?





Half the circumference multiplied by half of the diameter

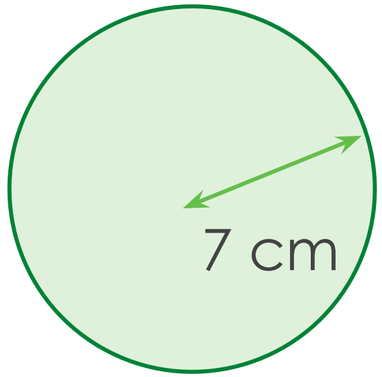
$\pi r \times r$

Half πd times the radius

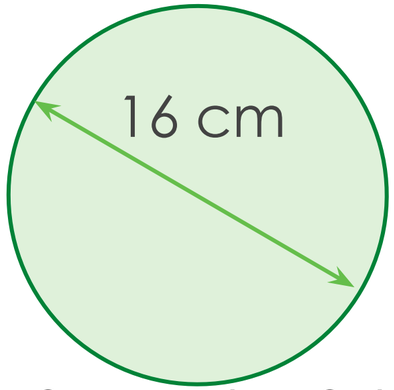
Independent task

1) Find both the area and circumference in exact form for the following:

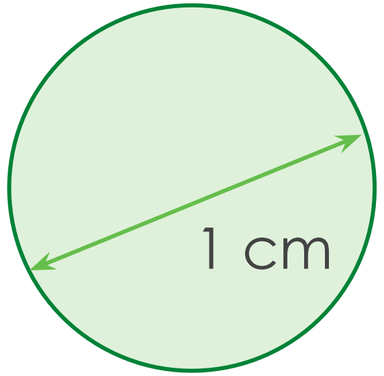
a)



b)

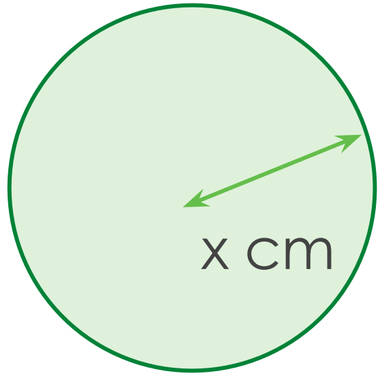


c)



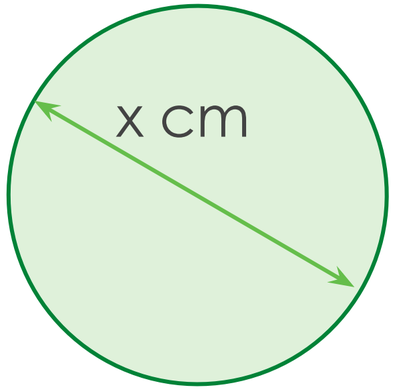
2) Find both the missing length for each of the following (to 1 decimal place)

a)



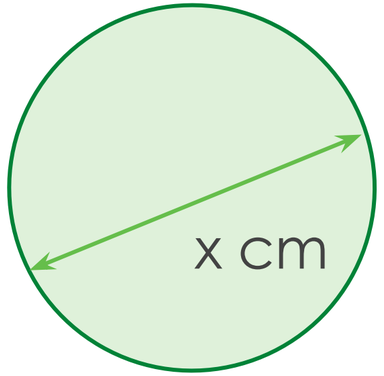
Area = 30 cm^2

b)



Circumference = 30 cm

c)



Area = 50 cm^2

Independent task

3) Find either the area and circumference in exact form for the following:

a) Area = 81π cm^2

Circumference = ____ cm

b) Area =_____ m^2

Circumference = 8π m

c) Area = 324π mm^2

Circumference = ____ mm

4) A bike wheel with diameter 58cm spins as it travels 1km. How many full turns did it make?

5) A gardener is buying some weed killer to put on a circular lawn with radius 22m. Each bottle covers 160m^2. How many bottles does he need to buy to cover the lawn?

Explore

This diagram shows concentric circles with radii from 1 cm to 10cm (growing by 1 cm each time). How many different areas can you find?

The area of the first grey circle is π cm^2

The area of the grey circle and the teal dotted circle combined is 4π cm^2

The area of the teal dotted space is 3π cm^2