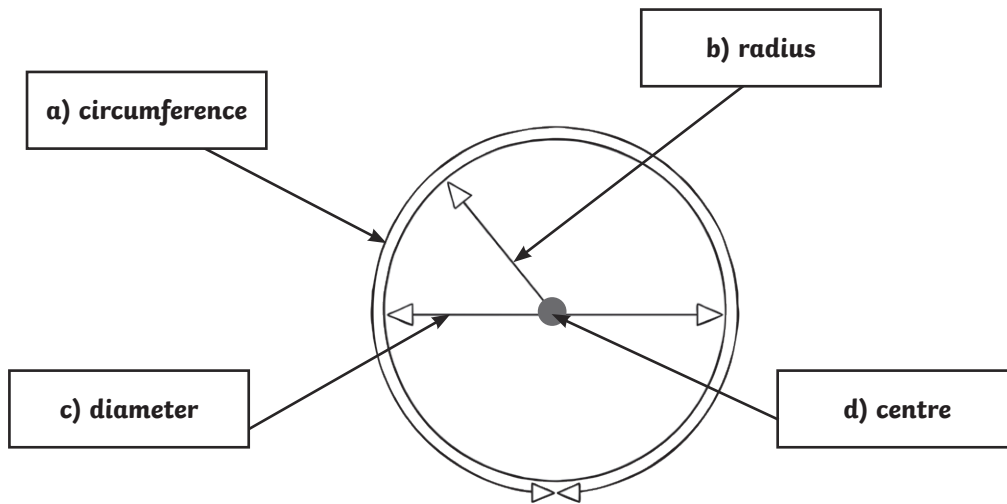




1)



2) twice
half

3)

	Radius	Diameter
A	6cm	12cm
B	4cm	8cm
C	8cm	16cm

4)

Radius	Diameter
5.5cm	11cm
6.5cm	13cm
3.75cm	7.5cm



- 1) They are both incorrect. The diameter and radius should be measured using the centre of a circle. The diameter goes from one point on the circumference through the centre and straight across to the opposite point of the circumference. The radius goes from the centre of the circle to one point on the circumference.
- 2) a) False. The radius is half the diameter.
 b) True. The radius of a circle is half the diameter so 7cm divided by 2 is 3.5cm.
 c) False. The radius is half the diameter so it is always smaller.
- 3) Possible solutions include:

Diameter of A	Diameter of B
3cm	18cm
12cm	72cm
2cm	12cm

- 4) $35\text{mm} = 3.5\text{cm}$
 $3.5\text{cm} \times 6 = 21\text{cm}$
 $21\text{cm} + 4\text{cm} = 25\text{cm}$
 The largest circle has a diameter of 25cm.



- 1) Each circle has a radius of 2.5cm.
 The rectangle is 15cm in length and fits 3 circles in. $15\text{cm} \div 3 = 5\text{cm}$
 The diameter of each circle is 5cm. The radius of a circle is half its diameter.
 $5\text{cm} \div 2 = 2.5\text{cm}$
- 2) a) Cake C, E and F in one box and cake A, B and D in the other.
 b) 10.5cm



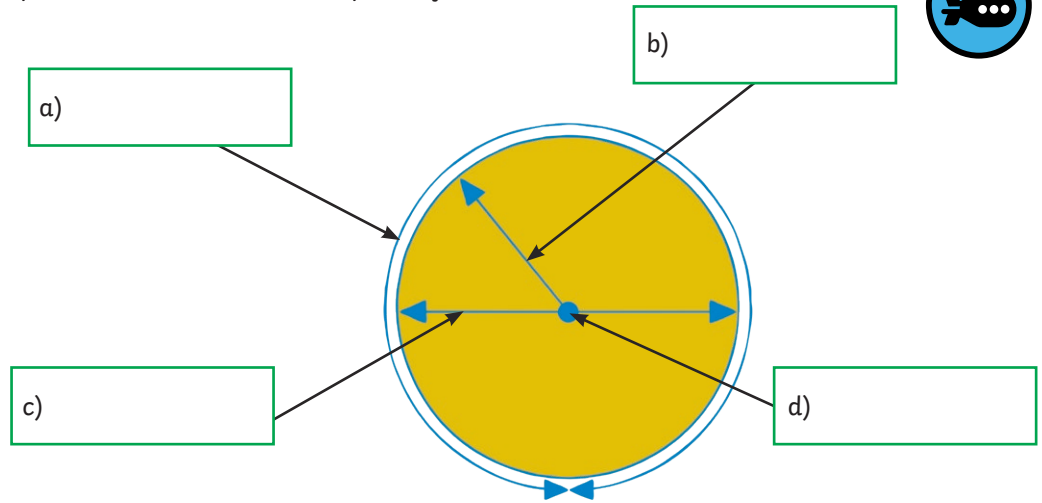
1) Use the words below to complete the labels to show the parts of a circle.

radius

diameter

centre

circumference

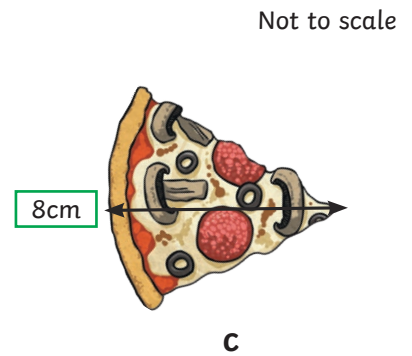
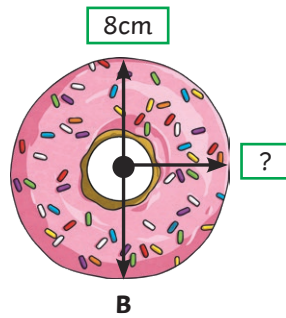
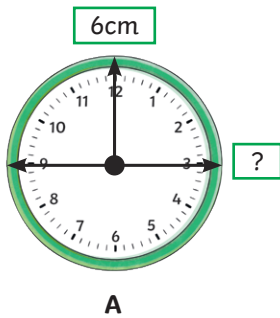


2) Complete these sentences

The diameter of a circle is _____ the length of the radius.

The radius of a circle is _____ the length of the diameter.

3) Find the diameter and radius of these objects.



	Radius	Diameter
A		
B		
C		

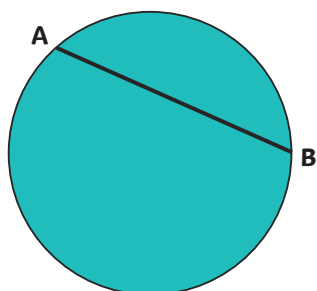
4) Complete the table.

Radius	Diameter
5.5cm	
	13cm
3.75cm	



1) Jack says this is the diameter of the circle. Kia says this is the radius of the circle.

Who do you agree with? Explain your answer.



2) True or false? Prove it.

a) The radius of a circle is twice its diameter. _____

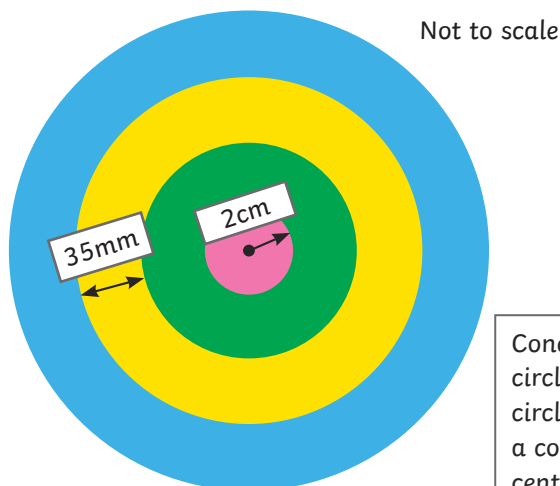
b) A circle with a diameter of 7cm has a radius of 3.5cm. _____

c) The radius of a circle can be bigger than its diameter. _____

3) The diameter of circle A is $\frac{1}{3}$ of the radius of circle B. Find 3 examples of their diameters that make this statement true.

Diameter of A	Diameter of B

4) Here are 4 concentric circles. The radius of the smallest circle is 2cm. The gap between the remaining circles is 35mm. What is the diameter of the largest circle? Show how you know.

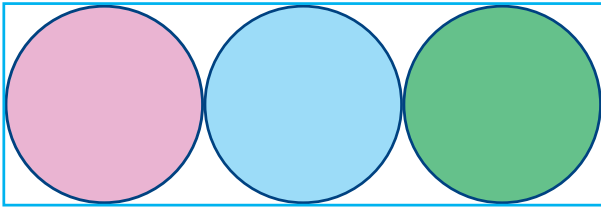


Concentric circles are circles with a common centre.



1) This design is made from a rectangle and three congruent circles.

The length of the rectangle is 15cm. What is the radius of each circle? Explain your answer.

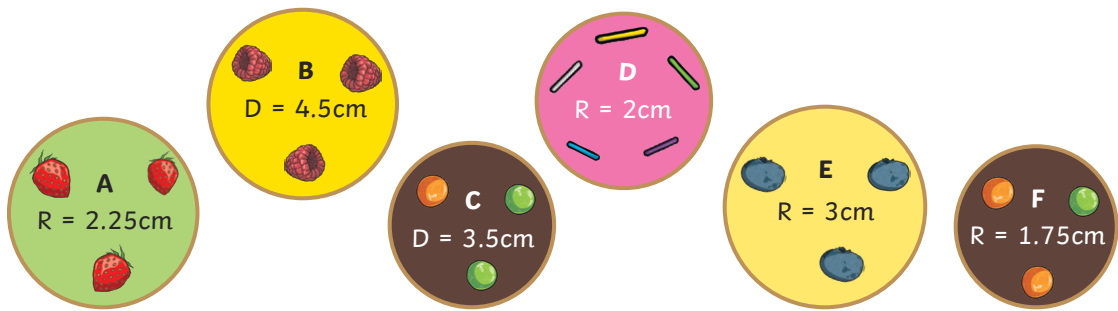


Not to scale

2) Tayla is packing cakes into boxes, ready to send out to the shops.

Here are her cakes:

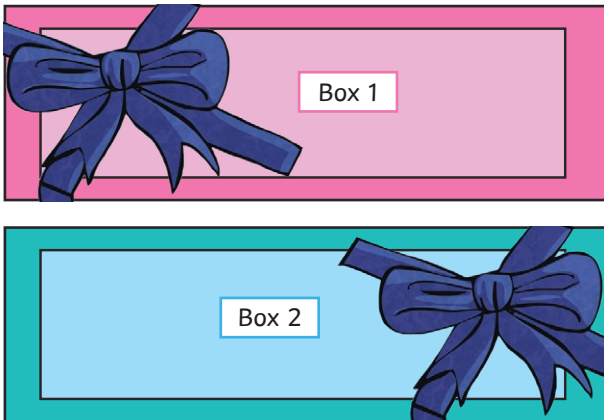
R - radius D - diameter



Not to scale

They must be packed in a row, next to each other. They must all be packed into these 2 boxes which each have a length of 13cm.

a) How should Tayla arrange them?



Not to scale

b) Tayla now wants to pack them in 2 rows in one box. The length of the box is 13cm. What is the minimum width it could be?

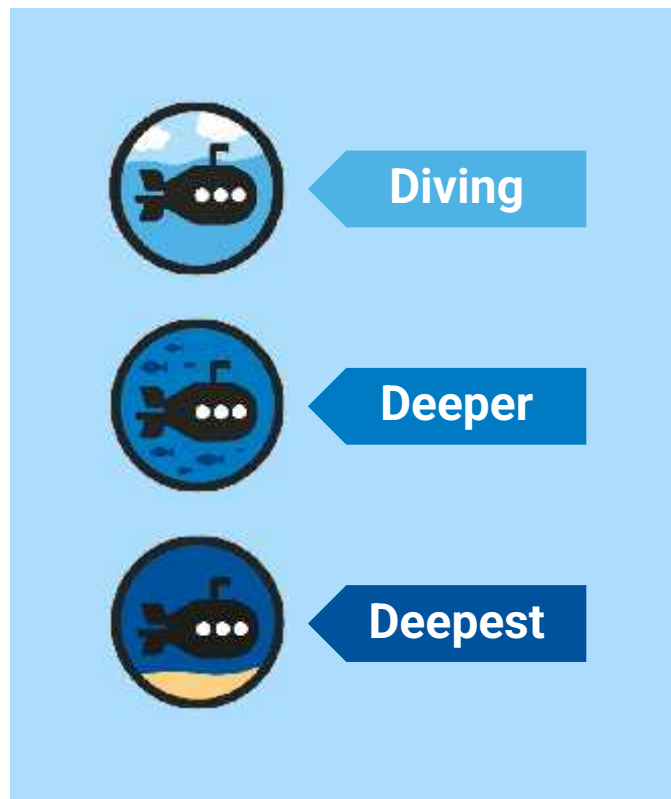
Diving into Mastery



Circles

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:



These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

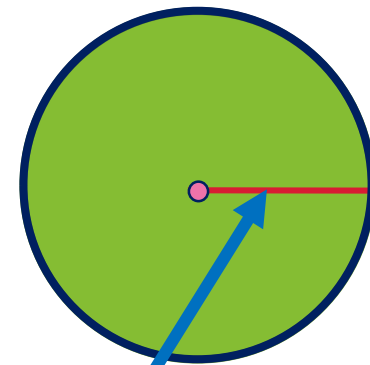
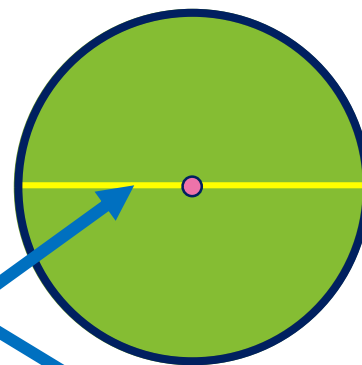
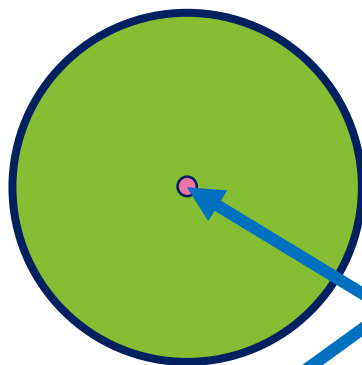
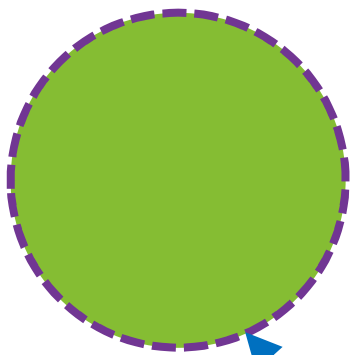
These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.



Match the name of the part of the circle to the correct diagram.



Diameter

Circumference

Radius

Centre



Find the missing measurements in the table.

Radius	Diameter
4cm	8cm
5.5cm	11cm
6.5cm	13cm
Diameter: 9cm	Diameter: 10cm
Diameter: 10cm	Diameter: 11cm

Not to scale

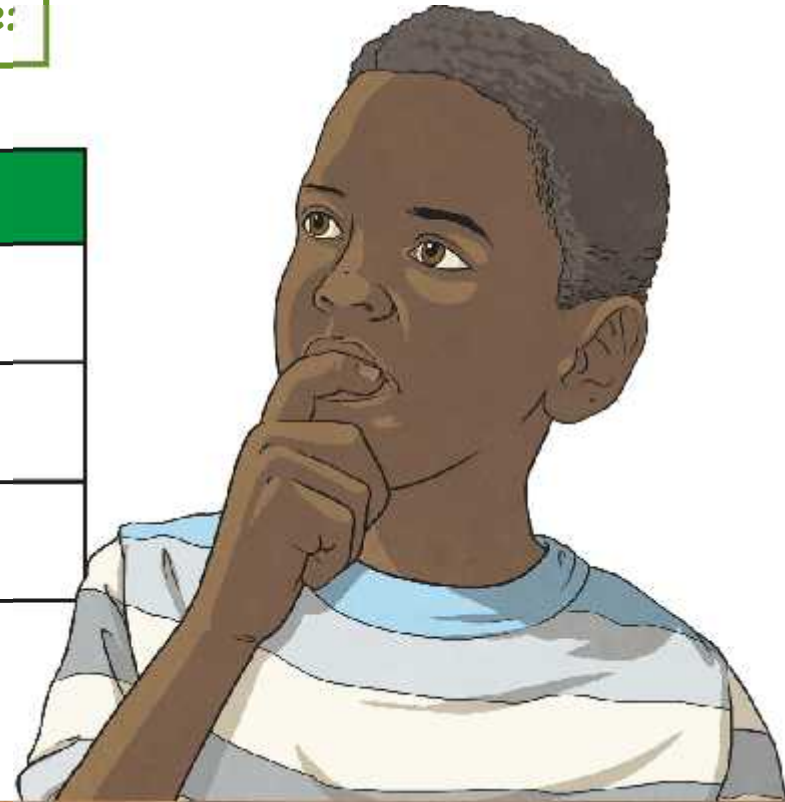




The diameter of circle A is $\frac{1}{4}$ of the diameter of circle B.
Find 3 examples that make this statement true.

Multiple possible answers, for example:

Diameter of A	Diameter of B
5cm	20cm
3cm	12cm
8cm	32cm





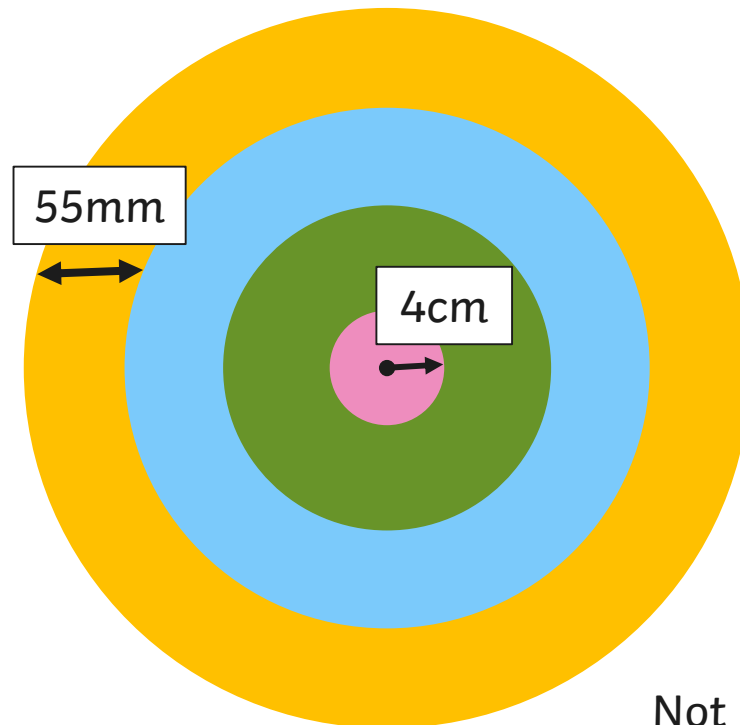
Here are 4 concentric circles. The radius of the smallest circle is 4cm. The gap between the remaining circles is 55mm.

What is the diameter of the largest circle?

Concentric circles are circles with a common centre.

$$\begin{aligned}55\text{mm} &= 5.5\text{ cm} \\5.5\text{cm} \times 6 &= 33\text{cm} \\4\text{cm} \times 2 &= 8\text{cm} \\33\text{cm} + 8\text{cm} &= 41\text{cm}\end{aligned}$$

The diameter of the largest circle is 41cm.



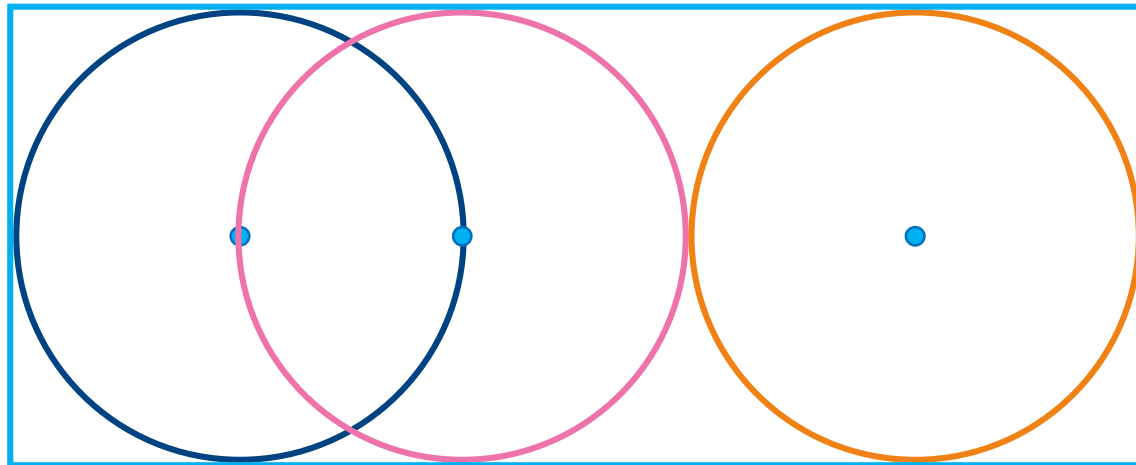
Not to scale



This design is made from a rectangle and three congruent circles, two of which overlap. The radius of each circle is 7cm.

What is the length of the rectangle?

Congruent means identical.



Not to scale

$$5 \times 7\text{cm} = 35\text{cm}$$

The length of the rectangle is 35cm.

Circles

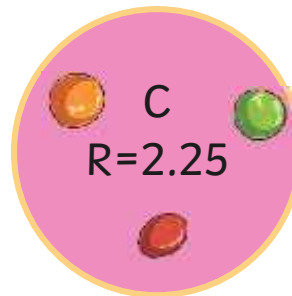
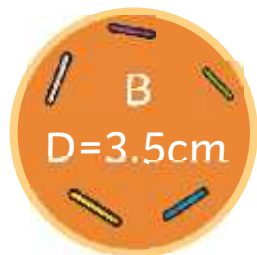
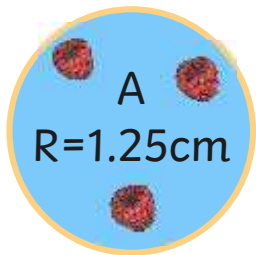
Deepest



Tayla is packing cakes into boxes, ready to send out to the shops.

Here are her cakes:

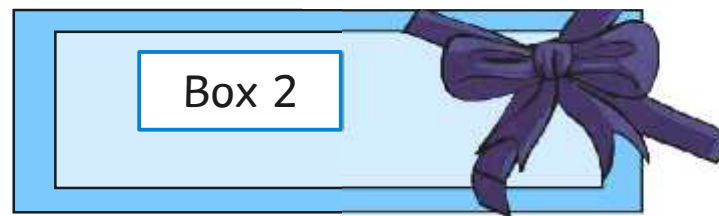
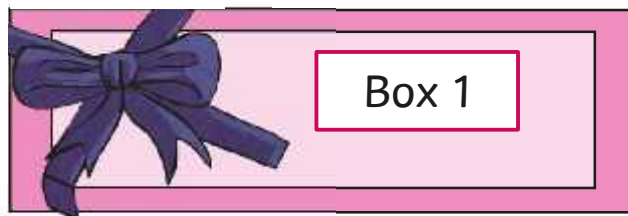
Not to scale



R – radius D – diameter

They must be packed in a row, next to each other. They must all be packed into these 2 boxes which each have a length of 8cm.

How should Tayla arrange them?



B and C in one box and A and D in the other.



1) Use the words below to complete the labels to show the parts of a circle.



circumference

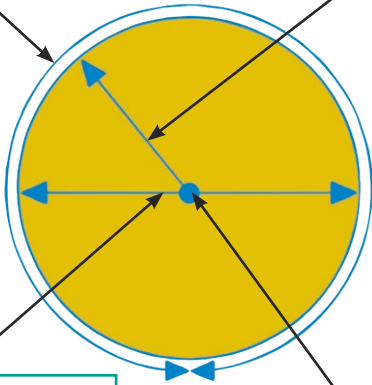
centre

radius

diameter

a)

b)



c)

d)

2) Copy and complete these sentences.

The diameter of a circle is _____ the length of the radius.

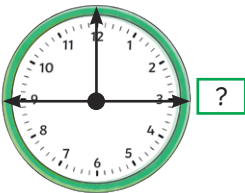
The radius of a circle is _____ the length of the diameter.

3) Find the diameter and radius of these objects.

Not to scale

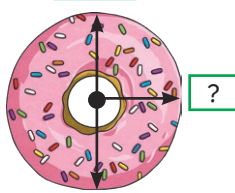
a)

6cm



b)

8cm

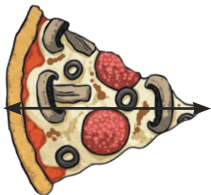


Radius: _____ Radius: _____

Diameter: _____ Diameter: _____

c)

8cm



Radius: _____

Diameter: _____

4) Copy and complete the table.

Radius	Diameter
5.5cm	
	13cm
3.75cm	

1) Use the words below to complete the labels to show the parts of a circle.



circumference

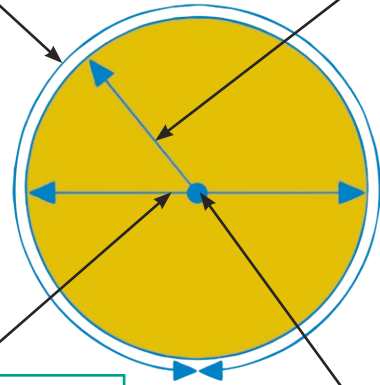
centre

radius

diameter

a)

b)



c)

d)

2) Copy and complete these sentences.

The diameter of a circle is _____ the length of the radius.

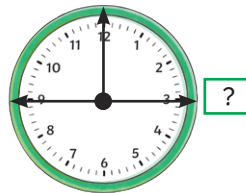
The radius of a circle is _____ the length of the diameter.

3) Find the diameter and radius of these objects.

Not to scale

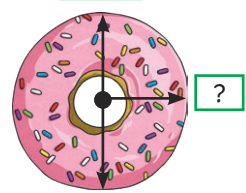
a)

6cm



b)

8cm

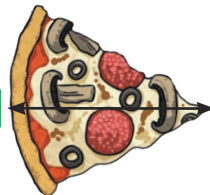


Radius: _____ Radius: _____

Diameter: _____ Diameter: _____

c)

8cm



Radius: _____

Diameter: _____

4) Copy and complete the table.

Radius	Diameter
5.5cm	
	13cm
3.75cm	

- 1) Jack says this is the diameter of the circle.
Kia says this is the radius of the circle.



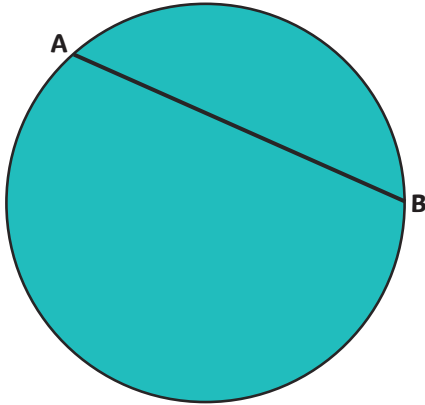
Who do you agree with?
Explain your answer.



Jack



Kia



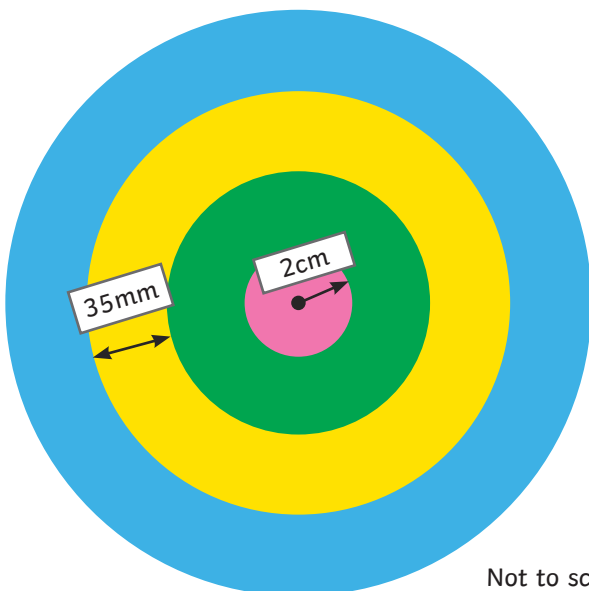
- 2) True or false? Prove it!

- The radius of a circle is twice its diameter.
- A circle with a diameter of 7cm has a radius of 3.5cm.
- The radius of a circle can be bigger than its diameter.

- 3) The diameter of circle A is $\frac{1}{3}$ of the radius of circle B. Find 3 examples of their diameters that make this statement true.

- 4) Here are 4 concentric circles. The radius of the smallest circle is 2cm. The gap between the remaining circles is 35mm. What is the diameter of the largest circle? Show how you know.

Concentric circles are circles with a common centre.



Not to scale

- 1) Jack says this is the diameter of the circle.
Kia says this is the radius of the circle.



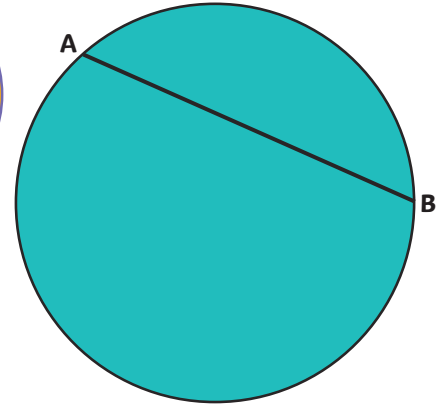
Who do you agree with?
Explain your answer.



Jack



Kia



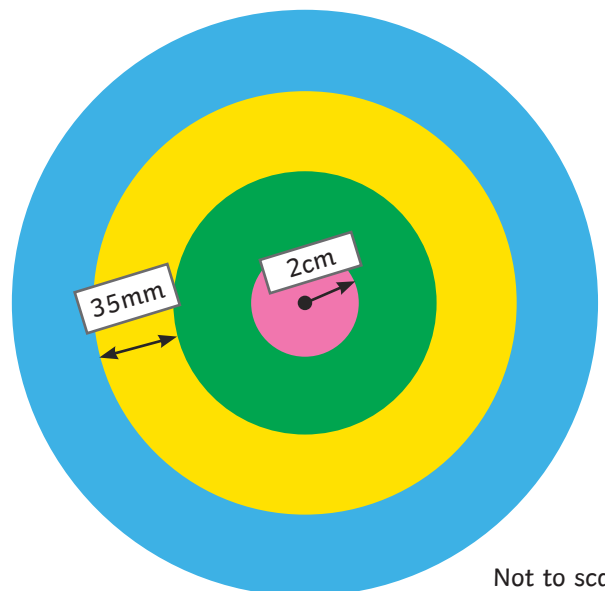
- 2) True or false? Prove it!

- The radius of a circle is twice its diameter.
- A circle with a diameter of 7cm has a radius of 3.5cm.
- The radius of a circle can be bigger than its diameter.

- 3) The diameter of circle A is $\frac{1}{3}$ of the radius of circle B. Find 3 examples of their diameters that make this statement true.

- 4) Here are 4 concentric circles. The radius of the smallest circle is 2cm. The gap between the remaining circles is 35mm. What is the diameter of the largest circle? Show how you know.

Concentric circles are circles with a common centre.



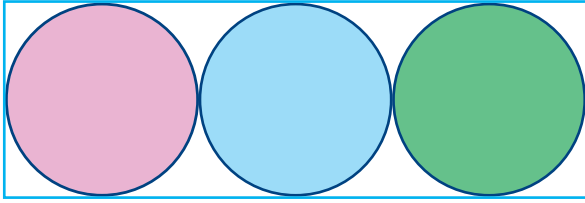
Not to scale

- 1) This design is made from a rectangle and three congruent circles.

The length of the rectangle is 15cm.

What is the radius of each circle?

Explain your answer.



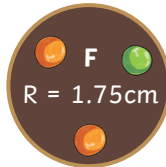
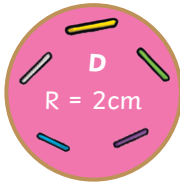
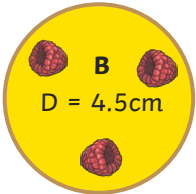
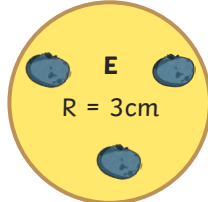
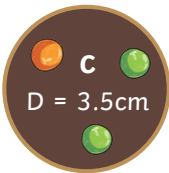
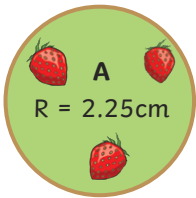
Not to scale

- 2) Tayla is packing cakes into boxes, ready to send out to the shops.

Here are her cakes:



Tayla



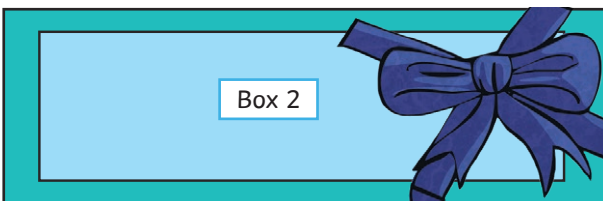
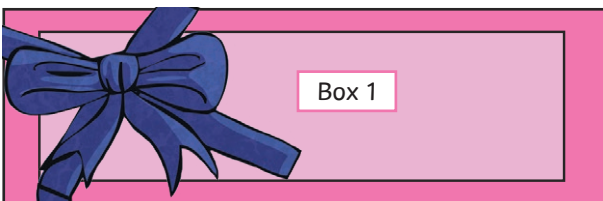
R - radius D - diameter

Not to scale

They must be packed in a row, next to each other.

They must all be packed into these 2 boxes which each have a length of 13cm.

- a) How should Tayla arrange them?



Not to scale

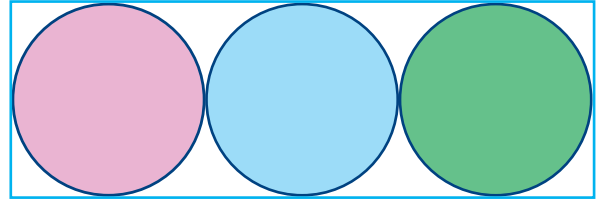
- b) Tayla now wants to pack them in 2 rows in one box. The length of the box is 13cm. What is the minimum width it could be?

- 1) This design is made from a rectangle and three congruent circles.

The length of the rectangle is 15cm.

What is the radius of each circle?

Explain your answer.



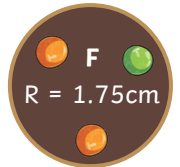
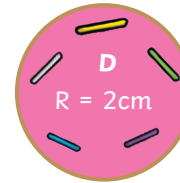
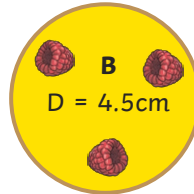
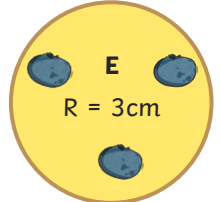
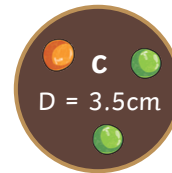
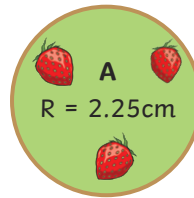
Not to scale

- 2) Tayla is packing cakes into boxes, ready to send out to the shops.

Here are her cakes:



Tayla



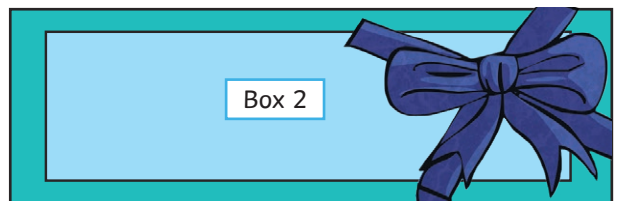
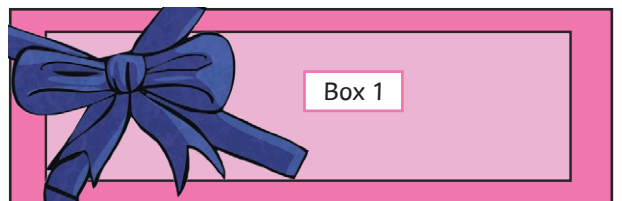
R - radius D - diameter

Not to scale

They must be packed in a row, next to each other.

They must all be packed into these 2 boxes which each have a length of 13cm.

- a) How should Tayla arrange them?



Not to scale

- b) Tayla now wants to pack them in 2 rows in one box. The length of the box is 13cm. What is the minimum width it could be?