



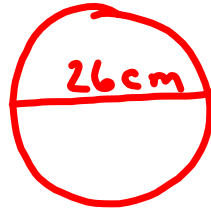
Warm Up Grade 7

Date: Dec 4

The diameter of a circle is 26 cm, what is the radius?

$$d = 26 \text{ cm}$$

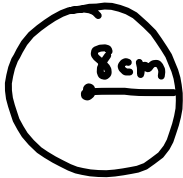
$$r = ?$$



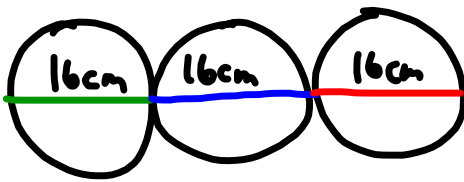
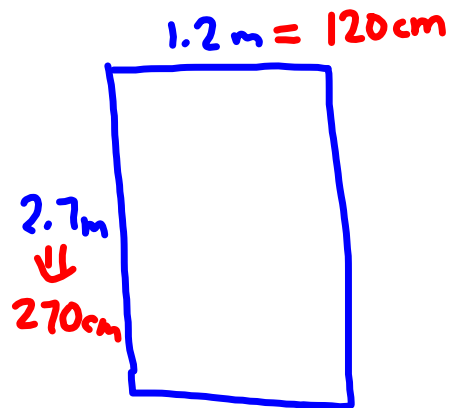
$$r = \frac{d}{2} = \frac{26 \text{ cm}}{2}$$

$$r = 13 \text{ cm}$$

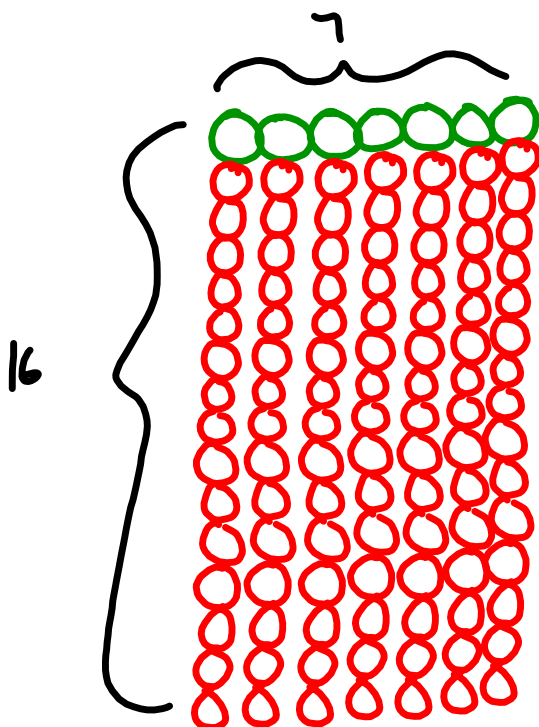
A cup has a radius of 8cm. If a rectangular table has the dimensions of 1.2m by 2.7m, then how many cups can fit on the table?



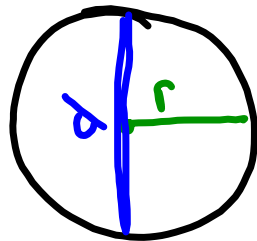
$$\begin{aligned} d &= 2 \times r \\ &= 2 \times 8\text{cm} \\ &= 16\text{cm} \end{aligned}$$



$$\begin{aligned} &120\text{cm} \\ &120\text{cm} \div 16\text{cm} = 7 \\ &270\text{cm} \\ &270\text{cm} \div 16\text{cm} \\ &= 16 \end{aligned}$$

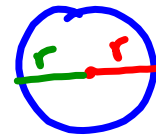


$$16 \times 7 = 112 \text{ cups can fit on the table.}$$



radius (r)
diameter (d)

$$d = 2 \times r$$



$$r = \frac{d}{2} \leftarrow \text{means } \div$$

HW solutions

6. A glass has a circular base with radius 3.5 cm.
A rectangular tray has dimensions 40 cm by 25 cm.
How many glasses will fit on the tray?
What assumptions did you make?

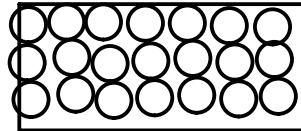
$$r = 3.5 \text{ cm} \quad d = 2 \times r$$

$$d = 2 \times 3.5 \text{ cm}$$

$$d = 7.0 \text{ cm}$$

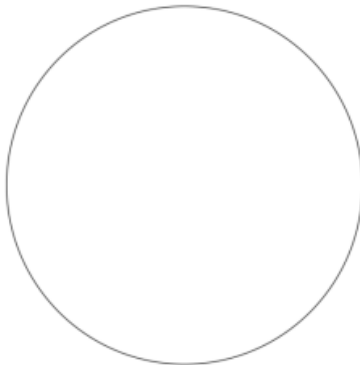
$$40 \text{ cm} \div 7 \text{ cm} = 5.71 \text{ so } 5$$

$$25 \text{ cm} \div 7 \text{ cm} = 3.57 \text{ so } 3$$



$$5 \times 3 = 15 \text{ glasses}$$

- a) Mark the centre, a radius, and a diameter of the circle below.
b) Measure the circumference of the circle.
Explain how you found your answer.
c) Measure the radius and diameter of the circle.



2) Fill in the chart

Radius	Diameter
a) 2.3 cm	4.6 cm
b) 7.5 cm	15 cm
c) 21 cm	42 cm
d) 80 cm	160 cm
e) 11.5 cm	23 cm

Recall Circles

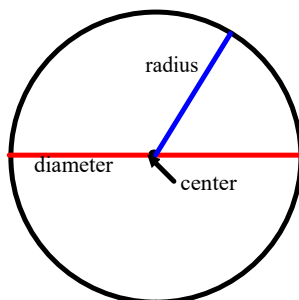
A **circle** is a shape where all points are the same distance (or equidistant) from the center.

From the math dictionary - A circle is a round flat two-dimensional shape where all points on the circumference are the same distance from the center.

The longest line through a circle, must pass through the center of the circle, this is the **diameter** of the circle.

The distance from the center of the circle to the outside of the circle is called the **radius**.

The **circumference** is the distance around (or perimeter) of the circle.



There is an infinite (unlimited number) of diameters and radii (plural for radius) that can be drawn.

What is the relationship between the radius and the diameter?

The diameter is 2 times the radius - $d = 2r$

or
The radius is half the diameter - $r = \frac{d}{2}$

a) Find the radius if the diameter is 28 cm

$$d = 28 \text{ cm}$$

$$r = ?$$

$$r = \frac{d}{2} = \frac{28 \text{ cm}}{2}$$

$$r = 14 \text{ cm}$$

b) Find the diameter if the radius is 16 cm

$$r = 16 \text{ cm}$$

$$d = ?$$

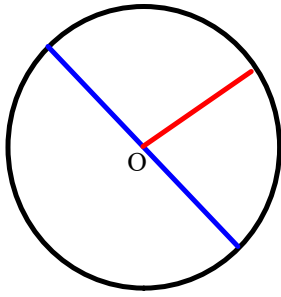
$$d = 2 \times r$$

$$= 2 \times 16 \text{ cm}$$

$$d = 32 \text{ cm}$$

Remember

Circles and Circumference



Do not recopy these notes

A circle is a flat, 2 dimensional shape, where all point are the same distance from the center of the circle. The center of the circle is normally indicated with the letter O.

Any line from the center of the circle to the circle is called the **radius**.

A line that touches the circle at two points, and passes through the center of the circle is called the **diameter**.

What is the relationship between the radius and the diameter?

The radius is half the diameter, or

The diameter is twice the radius.

If you are given the diameter can you find the radius? HOW?

If you are given the radius can you find the diameter? HOW?

Circles and Circumference

$$C = \pi d$$

$$C = 2\pi r$$

The perimeter of the circle is called the **circumference**.

How do you find the circumference?

There is a formula that you use to find the circumference,

Circumference equals the diameter times a constant, pi, π

π always equals 3.14

We use 3.14 for π , but actually it is an **irrational number**, 3.141 592 653 589.

An irrational number is a number that never repeats and never terminates, it can not be written as a fraction.

$$\text{Circumference} = \pi \times d$$

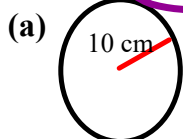
or since $d = 2 \times \text{radius}$

$$= 2 \pi r \text{ (which is } 2 \times \pi \times r \text{)}$$

$$C = \pi d \quad \text{or} \quad C = 2\pi r$$

Examples:

Find the **circumference** for each of the following:



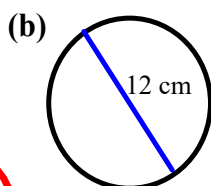
$$r = 10 \text{ cm}$$

$$C = ?$$

$$C = 2\pi r$$

$$= 2(3.14)(10 \text{ cm})$$

$$C = 62.8 \text{ cm}$$



$$d = 12 \text{ cm}$$

$$C = ?$$

$$C = \pi d$$

$$C = (3.14)(12 \text{ cm})$$

$$C = 37.68 \text{ cm}$$

(c) Circle with a radius of 4

$$r = 4$$

$$C = ?$$

$$C = 2\pi r$$

$$= 2(3.14)(4)$$

$$C = 25.12 \text{ units}$$

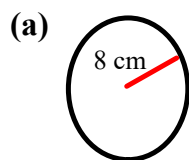
How would you estimate the circumference of a circle?

Multiply the diameter by 3 instead of 3.14

round π to 3

Examples:

ESTIMATE the circumference for each of the following:



$$r = 8 \text{ cm}$$

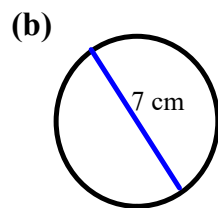
$$C = ?$$

Estimate

$$C = 2\pi r$$

$$\approx 2 \times 3 \times 8 \text{ cm}$$

$$\approx 48 \text{ cm}$$



$$d = 7 \text{ cm}$$

$$C = ?$$

Estimate

$$C = \pi d$$

$$\approx 3 \times 7 \text{ cm}$$

$$\approx 21 \text{ cm}$$

How would you find the circumference of a circle? Use $\pi = 3.14$

Example) Find the circumference if the radius is 15 cm.

Class / Homework

$$C = \pi d$$

WS 136

1, #2, #4, #5, #6, # 8

$$C = 2\pi r$$

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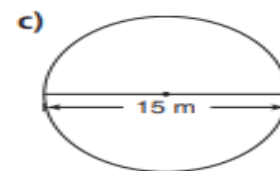
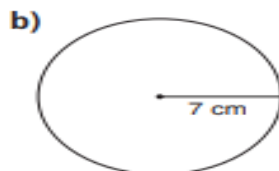
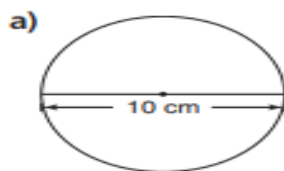
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$$\pi = 3.14$$

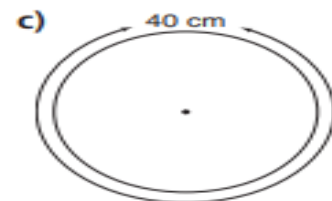
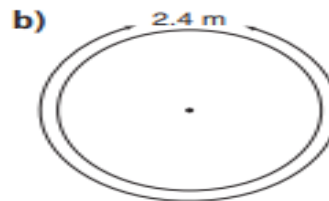
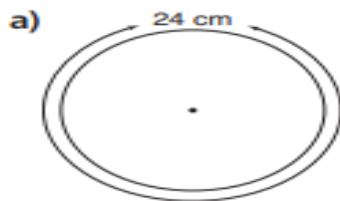
tomorrow

WS 136

- 1.** Calculate the circumference of each circle.
Give the answers to two decimal places.
Estimate to check the answers are reasonable.



- 2.** Calculate the diameter and radius of each circle.
Give the answers to two decimal places.
Estimate to check the answers are reasonable.



- 4.** A circular garden has diameter 2.4 m.
- The garden is to be enclosed with plastic edging.
How much edging is needed?
 - The edging costs \$4.53/m.
What is the cost to edge the garden?



- 5.** a) Suppose you double the diameter of a circle.
What happens to the circumference?
- b) Suppose you triple the diameter of a circle.
What happens to the circumference?
- Show your work.

6. A carpenter is making a circular tabletop with circumference 4.5 m.
What is the radius of the tabletop in centimetres?

Recall: $1 \text{ m} = 100 \text{ cm}$



8. **Assessment Focus** A bicycle tire has a spot of wet paint on it.
The radius of the tire is 46 cm.
Every time the wheel turns, the paint marks the ground.
- a) What pattern will the paint make on the ground as the bicycle moves?
- b) How far will the bicycle have travelled between two consecutive paint marks on the ground?
- c) Assume the paint continues to mark the ground.
How many times will the paint mark the ground when the bicycle travels 1 km?
Show your work.