



Grade 8 - Mathematics

Measurement 5

Memo



1. Calculate the circumference of a circle with a radius of 8cm.

$$\begin{aligned} C &= 2\pi r \\ &= 2 \times 3,14 \times 8\text{cm} \\ &= 6,28 \times 8\text{cm} \\ &= 50,24\text{cm} \end{aligned}$$

2. Calculate the circumference of a circle with a diameter of 20mm.

$$\begin{aligned} d &= 20\text{mm} \quad r = 10\text{mm} \\ C &= 2\pi r \\ &= 2 \times 3,14 \times 10\text{mm} \\ &= 6,28 \times 10\text{mm} \\ &= 62,8\text{mm} \end{aligned}$$

3. Complete the following table.

	Radius	Diameter	Circumference
a.	5km	10km	31,4km
b.	8cm	16cm	50,24cm
c.	20mm	40mm	125,6mm
d.	1,5m	3m	9,42m

$$\begin{array}{llll} \text{a. } C = 2\pi r & \text{b. } C = 2\pi r & \text{c. } C = 2\pi r & \text{d. } C = 2\pi r \\ = 2 \times 3,14 \times 5\text{km} & = 2 \times 3,14 \times 8\text{cm} & = 2 \times 3,14 \times 20\text{mm} & = 2 \times 3,14 \times 1,5\text{m} \\ = 6,28 \times 5\text{km} & = 6,28 \times 8\text{cm} & = 6,28 \times 20\text{mm} & = 6,28 \times 1,5\text{m} \\ = 31,4\text{km} & = 50,24\text{cm} & = 125,6\text{mm} & = 9,42\text{m} \end{array}$$



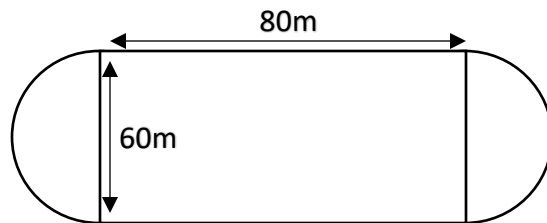
WorksheetCloud

4. Calculate the circumference of a semi-circle with a radius of 12cm

$$\begin{aligned}C &= 2\pi r \\ &= 2 \times 3,14 \times 12\text{cm} \\ &= 6,28 \times 12\text{cm} \\ &= 75,36\text{cm}\end{aligned}$$

$$\begin{aligned}\text{Semi-circle} &= \frac{1}{2}C \\ &= \frac{1}{2} \times 75,36\text{cm} \\ &= 37,68\text{cm}\end{aligned}$$

5. Calculate the perimeter of the following shape:



$$\begin{aligned}P \text{ of rectangle} &= 2(L + B) \\ &= 2(80\text{m} + 60\text{m}) \\ &= 2 \times 140\text{m} \\ &= 280\text{m}\end{aligned}$$

$$\begin{aligned}2 \times \text{semi-circle} &= 1 \text{ full circle} \\ C \text{ of circle} &= 2\pi r \\ &= 2 \times 3,14 \times 30\text{m} \\ &= 6,28 \times 30\text{m} \\ &= 188,4\text{m}\end{aligned}$$

$$\begin{aligned}P + C &= 280\text{m} + 188,4\text{m} \\ &= 468,4\text{m}\end{aligned}$$



WorksheetCloud

6. A. Peter wants to build a fence around his circular flower bed. If the diameter of the flower bed is 4m, how much fencing does he need?

$$r = \frac{1}{2}d$$

$$r = \frac{1}{2} \times 4\text{m}$$

$$r = 2\text{m}$$

$$C = 2\pi r$$

$$= 2 \times 3,14 \times 2\text{m}$$

$$= 6,28 \times 2\text{m}$$

$$= 12,56\text{m}$$

- B. Peter can only buy fencing in whole meters. Calculate the cost of fencing around the flower bed if the fencing costs R250 per metre.

$$12,56\text{m rounded off} = 13\text{m}$$

$$\text{Cost} = 13\text{m} \times \text{R}250$$

$$= \text{R}3\,250$$