Circumference and area of circles

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. A circle has radius 2 cm. Find its diameter. [1 mark]

$d = 2r = 2(2) = 4$ cm.

Answer: 4 cm.

2. Find the circumference of a circle with radius 6 cm. [2 marks]

$C = 2\pi(6) = 12\pi$ cm.

Answer: 12π cm.

3. Find the area of a circle with radius 4 m. [2 marks]

$A = \pi(4)^2 = 16\pi$ m².

Answer: 16π m².

4. A circular sign has diameter 10 cm. Find its circumference and area. [3 marks]

The radius is $\frac{10}{2} = 5$ cm.

$C = \pi d = 10\pi$ cm.

$A = \pi(5)^2 = 25\pi$ cm².

Answer: 10π cm and 25π cm².

5. A radius doubles from 3 cm to 6 cm. By what factor does circumference change? By what factor does area change? [3 marks]

Circumference is proportional to r, so its factor is 2.

Area is proportional to r^2, so its factor is $2^2 = 4$.

Answer: Circumference doubles; area is multiplied by 4.

6. A circular pond has diameter 8 m. A student writes its area as 64π m². Explain and correct the error. [3 marks]

The radius is 4 m.

$A = \pi(4)^2 = 16\pi$ m².

Answer: They squared the diameter. Correct area: 16π m².