

Circle Around

See how radius changes the distance around a circle.

GRADE 6 • 6.MG.1.b.ii

6.MG.1.b.ii "Investigate and describe the relationship between: radius and circumference; and"

NAME _____

DATE _____

RADIUS AND CIRCUMFERENCE

Circumference is the distance around a circle. Use $C = 2\pi r$, where r is the radius. When the radius is multiplied by a number, the circumference is multiplied by the same number. Unless a question tells you differently, use $\pi = 22/7$.

WORKED EXAMPLE

A circle has a radius of 9 cm. Use π approximately equal to 3.14. Find its circumference.

1. Use $C = 2\pi r$.
2. Substitute: $C = 2 \times 3.14 \times 9$.
3. Multiply: $C = 56.52$ cm.

Answer: 56.52 cm

PRACTICE 6 problems

- 1** A circle has a radius of 7 cm. Find its circumference.

ANSWER _____

- 2** A circle has a radius of 14 m. Find its circumference.

ANSWER _____

- 3** A circle has a circumference of 66 in. Find its radius.

ANSWER _____

- 4** A circle has a circumference of 132 ft. Find its radius.

ANSWER _____

- 5** A circle has a radius of 3.5 cm. Find its circumference.

ANSWER _____

- 6** Circle A has a radius of 3.5 cm and a circumference of 22 cm. Circle B has a radius of 10.5 cm. Find the circumference of Circle B.

ANSWER _____

APPLY IT Show your work

- 1** A skateboard wheel has a radius of 7 cm. How far does the wheel travel in one complete turn?

WORK SPACE

ANSWER _____

- 2** The gaming club is making a circular button with a circumference of 88 mm. What radius should the button have?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A circular game target has a circumference of 88 cm. Its radius is increased by 50%. Find the new radius, the new circumference, and the increase in circumference. Explain why the circumference changes by that amount.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A circle has a radius of 7 cm. Find its circumference.	44 cm
2	A circle has a radius of 14 m. Find its circumference.	88 m
3	A circle has a circumference of 66 in. Find its radius.	10.5 in
4	A circle has a circumference of 132 ft. Find its radius.	21 ft
5	A circle has a radius of 3.5 cm. Find its circumference.	22 cm
6	Circle A has a radius of 3.5 cm and a circumference of 22 cm. Circle B has a radius of 10.5 cm. Find the circumference of Circle B.	66 cm

PART 2 • APPLY IT

- 44 cm** One complete turn covers the wheel's circumference. Use $C = 2\pi r = 2 \times 22/7 \times 7 = 44$ cm.
- 14 mm** Use $r = C \div (2\pi)$. $r = 88 \div (2 \times 22/7) = 14$ mm.

CHALLENGE

New radius: 21 cm. New circumference: 132 cm. Increase: 44 cm. The radius is multiplied by 1.5, so the circumference is also multiplied by 1.5.

Accept equivalent fraction or decimal forms when correct, such as $10 \frac{1}{2}$ in for 10.5 in. For the challenge, students should state that circumference changes by the same factor as radius.