Circle Distance Lab

Use radius, diameter, and pi to find distance around a circle.

MA.7.GR.1.3 · Explore the proportional relationship between circumferences and diameters of circles. Apply a formula for the circumference of a circle to solve mathematical and real-world problems.

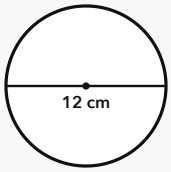
Name _____ Date _____

Circumference Connections

Circumference is the distance around a circle. Use C = πd when you know the diameter, or use C = 2πr when you know the radius. Give an exact answer with π unless the problem tells you which value of π to use.

Worked example

Find the circumference of the circle in terms of π.

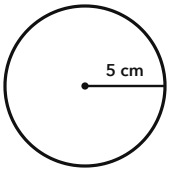


1. Use C = πd.
2. Substitute 12 for d: C = π(12).
3. Multiply: C = 12π cm.

12π cm

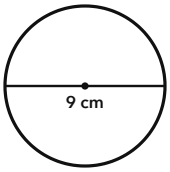
1. Practice

Find the circumference of the circle in terms of π.



2. Practice

Find the circumference of the circle in terms of π.



3. Practice

A circle has a circumference of 36π cm. What is its diameter?

4. Practice

A circular garden has a radius of 7 m. Use π = 22/7 to find its circumference.

5. Practice

A circle has a circumference of 31.4 cm. Use π = 3.14 to find its diameter.

6. Practice

These illustrative values were calculated using π ≈ 3.14; they are not measurements. Complete C/d for each circle. Describe the relationship and predict C when d = 20 cm.

Diameter d (cm)	Circumference C (cm)	C/d
2	6.28	
5	15.7	
10	31.4	

7. Apply

A robotics team uses a wheel with a diameter of 14 cm. How far does the wheel travel in one complete turn? Use π = 22/7.

8. Apply

A music club is making a circular sticker with a radius of 6.5 cm. What length of border is needed to go once around the sticker? Give your answer in terms of π.

9. Challenge

A circle has a circumference of 66 cm. Use π = 22/7. Find the radius, and explain how you used the circumference to find it.

What to accept

Accept equivalent exact forms, such as 2π(6.5) cm for 13π cm. For the challenge, accept a correct explanation that finds the diameter first and then divides by 2.

1. Practice

10π cm

2. Practice

9π cm

3. Practice

36 cm

4. Practice

44 m

5. Practice

10 cm

6. Practice

Each C/d is approximately 3.14; circumference is proportional to diameter, with constant π. For d = 20 cm, C ≈ 62.8 cm.

7. Apply

44 cm

Use C = πd. Substitute 22/7 for π and 14 cm for d: C = (22/7)(14) = 44 cm.

8. Apply

13π cm

Use C = 2πr. Substitute 6.5 cm for r: C = 2π(6.5) = 13π cm.

9. Challenge

10.5 cm; Since C = πd, d = 66 ÷ (22/7) = 21 cm. The radius is half the diameter, so r = 10.5 cm.