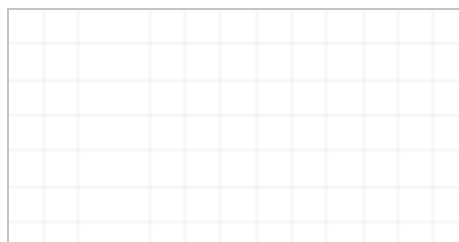
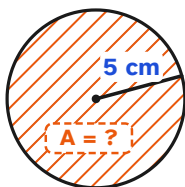


Answer:

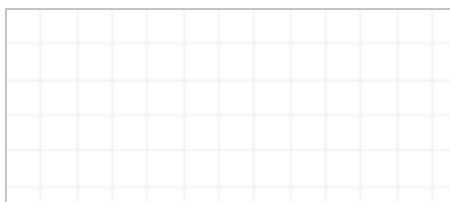
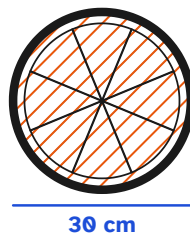
●●○ Level 3 • Area

- 7 Find the area.



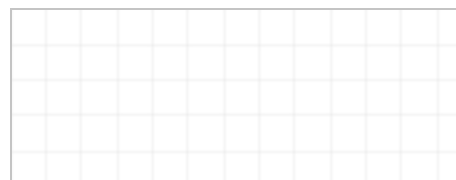
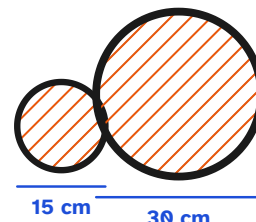
Answer: _____

- 8 A pizza has a diameter of 30 cm. What is its area?



Answer: _____

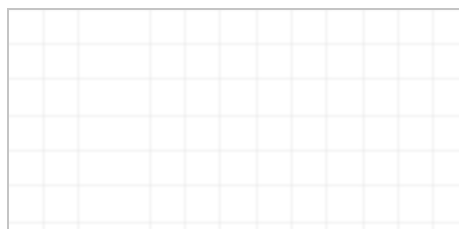
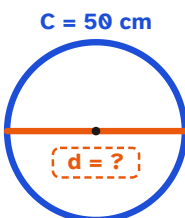
- 9 How many times more pizza does the large one have than the small one? Find both areas.



Answer: _____

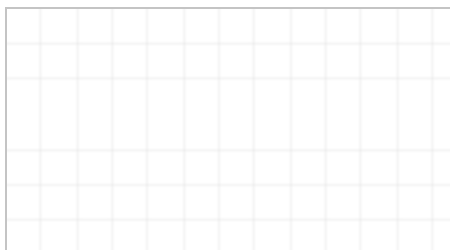
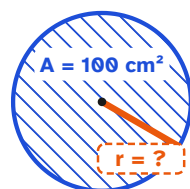
●●● Level 4 • Working backward

- 10 The circumference is 50 cm. How long is the diameter? And the radius?



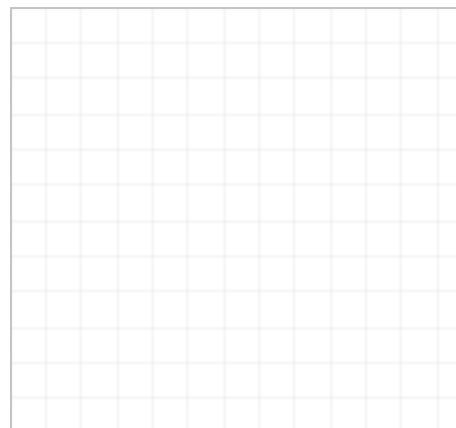
Answer: _____

- 11 A circle has an area of 100 cm². How long is its radius?



Answer: _____

- 12 A circular garden has an area of 314 m². How many meters of fence do you need to go around it?



Answer: _____

Got a different number? Check: #4 → 125.6: you used $2 \cdot \pi$ with the diameter · #7 → 31.4: you did $r \cdot 2$ instead of $r \cdot r$; 246.49: you squared $(\pi \cdot r)$ · #8 → 2826: you used the diameter in $\pi \cdot r^2$ · #9 → 2: when the diameter doubles, the area is multiplied by 4 · #10 → 157: you multiplied by π instead of dividing · #11 → 31.85: you forgot the square root.

Answers: 1) 8 cm · 2) 7.5 cm · 3) 1.2 cm · 4) 62.8 cm · 5) 31.4 cm · 6) 207.24 cm; about 207 m · 7) 78.5 cm · 8) 706.5 cm² · 9) 176.63 and 706.5 cm²: 4 times · 10) d ≈ 15.92 cm; r ≈ 7.96 cm · 11) r ≈ 5.64 cm · 12) r = 10 m; C = 62.8 m



Check your answers with the step-by-step solution: zapcalculator.com/perimeter-of-a-circle
Free to use in the classroom · CC BY 4.0

For the teacher (do not photocopy)

Goal: tell the radius from the diameter and the circumference (the edge) from the area (the surface); find the circumference and the area, and work backward to the radius or the diameter.

When: practice or homework, after discovering π (circumference $\div$ diameter). **Time:** 45 min. **Materials:** calculator. **Standard:** CCSS 7.G.B.4.

Figure key: orange edge = circumference to find; shaded inside = area to find; given values in blue.

Answer key ($\pi \approx 3.14$; in parentheses, with the π key)

1. $d = 2 \cdot 4 = 8$ cm
2. $r = 15 \div 2 = 7.5$ cm
3. $r = 2.4 \div 2 = 1.2$ cm
4. $C = 3.14 \cdot 20 = 62.8$ cm (62.83)
5. $C = 2 \cdot 3.14 \cdot 5 = 31.4$ cm (31.42)
6. $C = 3.14 \cdot 66 = 207.24$ cm (207.35); 100 turns $\approx 20,724$ cm ≈ 207 m
7. $A = 3.14 \cdot 5^2 = 78.5$ cm² (78.54)
8. $r = 15$ cm; $A = 3.14 \cdot 225 = 706.5$ cm² (706.86)
9. small: $r = 7.5 \rightarrow 176.63$ cm²; large: 706.5 cm² $\rightarrow 4$ times (the diameter doubles, the area quadruples)
10. $d = 50 \div 3.14 \approx 15.92$ cm; $r \approx 7.96$ cm
11. $r = \sqrt{(100 \div 3.14)} \approx \sqrt{31.85} \approx 5.64$ cm
12. $r^2 = 314 \div 3.14 = 100 \rightarrow r = 10$ m; $C = 2 \cdot 3.14 \cdot 10 = 62.8$ m

Mistakes to watch for

- Using the diameter as if it were the radius (the most common one).
- Calculating r^2 as $r \cdot 2$ or as $(\pi \cdot r)^2$.
- Forgetting the square root when working backward from the area.

Exit ticket

If one pizza has twice the diameter of another, how many times more pizza does it have? And how many times more crust (circumference)? (4 times the area; 2 times the circumference.)