Around and Inside Circles

Circumference, area and tricky composite shapes

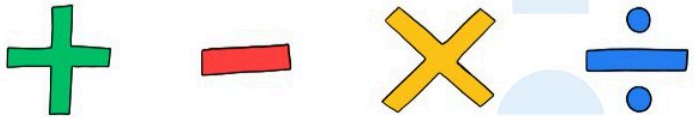


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What could this be?

I go round once to fence it. I cover all of it to paint it. What am I measuring?

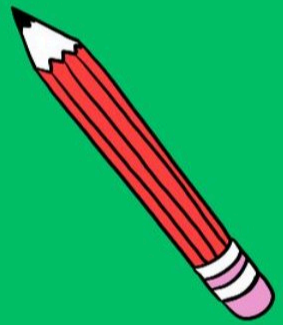




$a^2+b^2=c^2$

One radius does it all

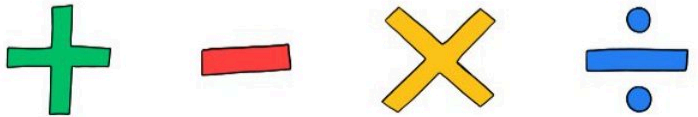
Radius from centre to edge → Double it to get diameter → Times pi to get circumference → Squared times pi to get area



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BIG IDEA

You only need the radius and pi to find both distance round and space inside.

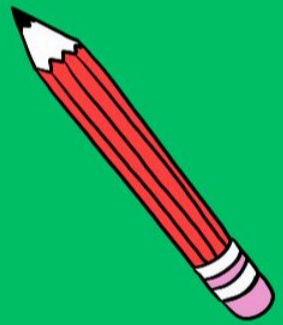


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$a^2+b^2=c^2$

What confuses you most?

Which mix-up catches you out most often?

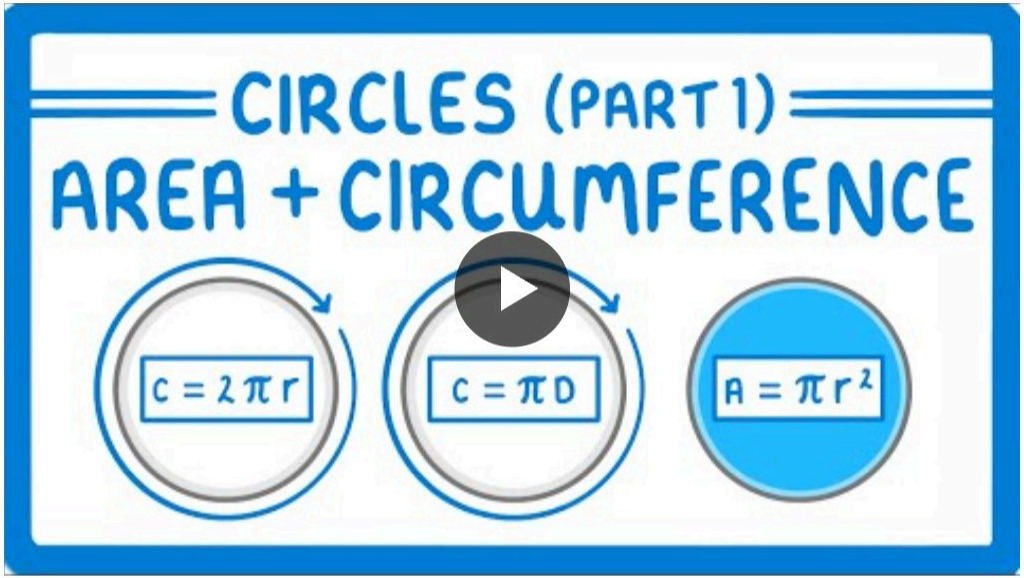


- **A** Radius and diameter
- **B** Area and circumference formulas
- **C** Perimeter of semicircles
- **D** Leaving answers in terms of pi

Vote with your hands, then explain why.

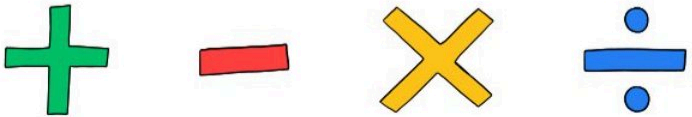
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Watch: formulas that work



▶ 0:51 – 3:54

- Spot C = 2 x pi x r and C = pi x d
- Spot A = pi x r squared



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$a^2+b^2=c^2$

Circle toolkit

📏

Radius

Line from centre to edge.

↔️

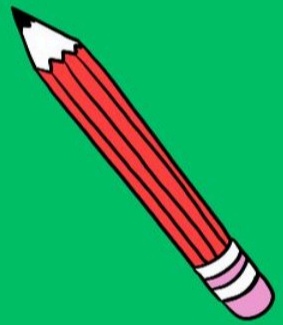
Diameter

Line across through centre, twice radius.

⭕

Circumference

Distance all the way round circle.



🥧

Pi

Special number about 3.14 for all circles.

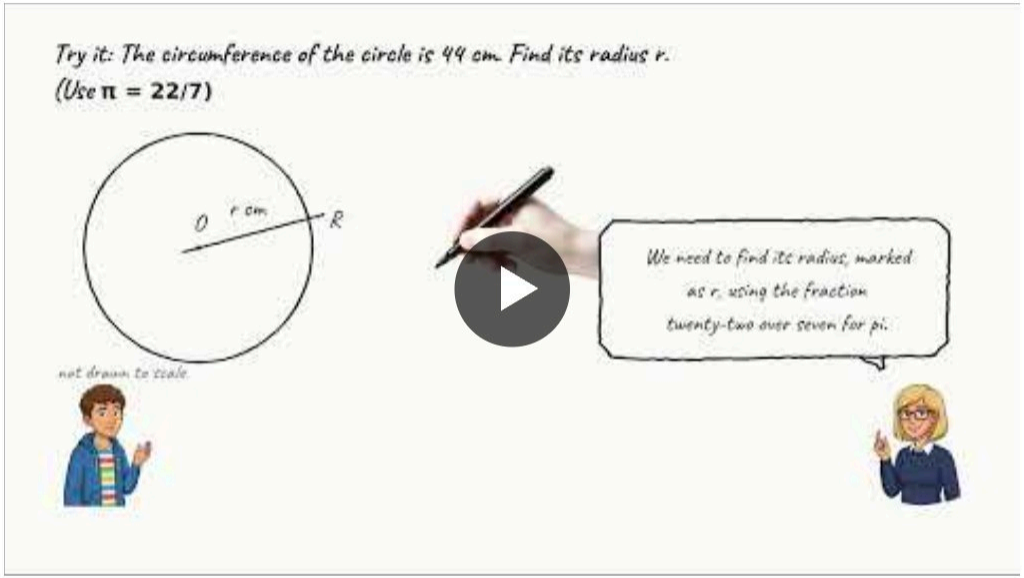
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Area

Space inside, measured in square units.

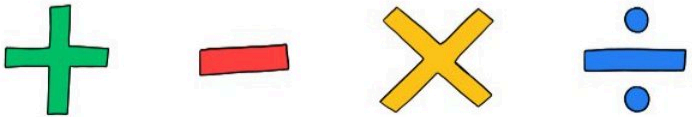
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Watch: half circles, full care



▶ 2:13 – 4:11

- Check if straight edge counts
- Check halving area but not halving all perimeter



$a^2+b^2=c^2$

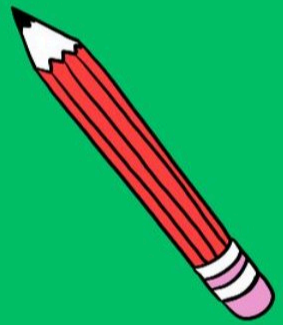
Your task

Work out circumference and area for three circles, then one composite shape.

1. Find radius, halve diameter if needed.
2. Calculate C = pi x d and A = pi x r squared.
3. Add half-circle plus rectangle for composite.

10 min

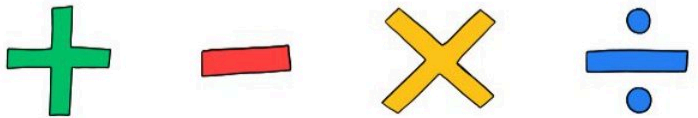
In pairs



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Never get stuck

1. Label radius and diameter.
2. Pick C = pi x d or A = pi x r squared.
3. Halve for semicircles where needed.
4. Add straight edges to perimeter.
5. Give units: cm and cm squared.



$a^2+b^2=c^2$

Think, pair, share

A semicircle radius 4 cm. Is perimeter pi x 4? What is missing?

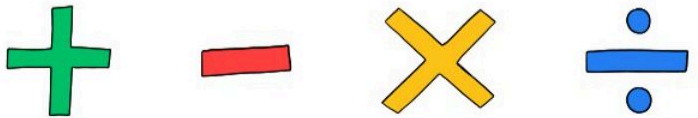




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Quick quiz

1. Diameter 10 cm, pi = 3.14. Circumference?
2. Radius 3 cm, pi = 3.14. Area?
3. Semicircle radius 4 cm. Area?
4. Same semicircle. Full perimeter?



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