



Composite area

Break it into shapes you know

- Today: find the area of shapes made from rectangles, triangles and circles.

A 10 by 6 rectangle with a semicircle on the 6 cm end

- What is the semicircle's radius?

Turn & talk: is it 6 or 3?

A span across a circle is a **DIAMETER**

- The 6 cm end is the full width of the semicircle.
- So the radius is $6 \div 2 = 3$ cm.

Radius 3 $\rightarrow 4.5\pi \text{ cm}^2$

- Circle: $\pi(3)^2 = 9\pi$. Half of that: 4.5π .
- Using 6 would give 18π — four times too big.

Area four times too large? A diameter was used as a radius.

Add the pieces, or subtract the hole

- Decompose $\rightarrow$ find each area $\rightarrow$ ADD.
- Compose a whole $\rightarrow$ SUBTRACT what's missing.

A shape with a hole must have LESS area than the whole.

Your turn

- A 10 by 4 rectangle with a semicircle on each SHORT end. Total area?
- Thumbs up when you have it.

Two semicircles make a circle

- Radius 2 each $\rightarrow$ together $\pi(2)^2 = 4\pi \text{ cm}^2$.
- Total: $40 + 4\pi \text{ cm}^2$.

Combine them first. Halving twice invites mistakes.

Now you

- → In-class practice sheet