Date: _____

1.3 Surface Area

***MathLinks 9*, pages 26–35**

Key Ideas Review

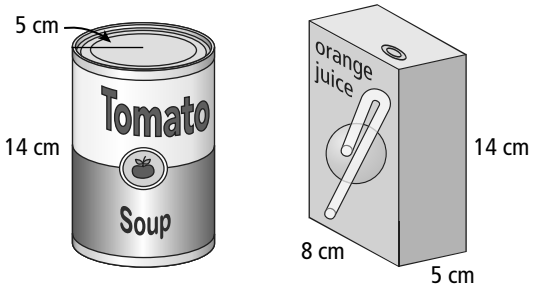
1. Complete the chart below, using the first row as a sample. Show your answer to the nearest tenth.

Shape	Formula	Example	Surface Area
Square	$A = l \times w$	One side of a paper napkin: 10 cm by 10 cm	100 cm^2
a) Rectangle	$A = l \times w$	One side of an envelope: 30 cm by 22.5 cm	
b) Circle	$A = \pi r^2$	One side of a clock face: 30 cm across, or radius of 15 cm	
c) Rectangular prism	$A =$ 2(area of base) + (perimeter of base) $\times$ height	Tissue box: 25 cm by 12 cm by 12 cm	
d) Cylinder	$A = 2\pi r^2 + 2\pi rh$	Candle: 15 cm high and 8 cm across	
e) Triangle	$A = \frac{1}{2}b \times h$	End wall of a tent: 2 m along base and 1.5 m high	

2. Define *surface area* in your own words.

Check Your Understanding

3. Which container has the greater surface area? How much more surface area does one have than the other? Show your answer to the nearest tenth.



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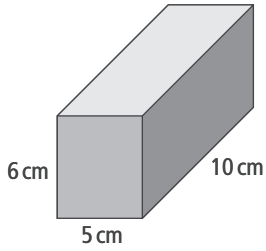
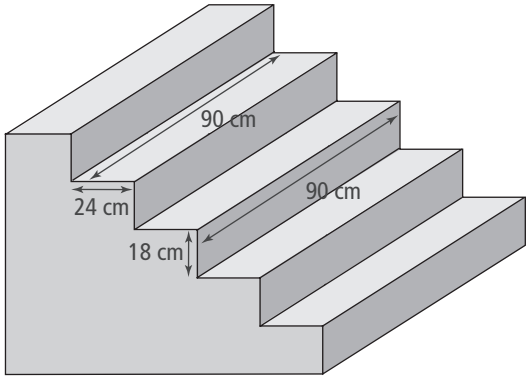
4. The diagram shows a right rectangular prism.



a) Determine the surface area of the prism.

b) If the height is doubled, what is the new surface area?

5. Silvio wants to cover the stairs to his basement. There are 14 treads, or steps, and 14 risers. Each step is 90 cm wide and 24 cm deep. Each riser is 90 cm wide and 18 cm high. The diagram shows some of the stairs.



a) What is the surface area of the step treads?

b) What is the surface area of the risers?

c) What is the total surface area of the part of the stairs Silvio plans to cover?

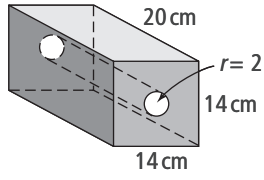
6. The Great Pyramids at Giza, Egypt, are one of the greatest engineering accomplishments ever. The largest pyramid is 146.7 m high. The length of each side of the square base is approximately 230.6 m. Show all answers to the nearest tenth.

a) What is the surface area of the base of the pyramid?

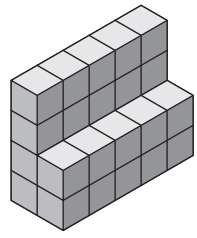
b) What is the surface area of each triangular side?

c) What is the total surface area of the pyramid?

7. The rectangular box has a tube running through it. What is its total surface area to the nearest tenth?



8. a) This object has been constructed from centimetre cubes. Calculate its surface area.



b) If the length of the object is increased from five cubes to eight cubes, what is the new surface area?