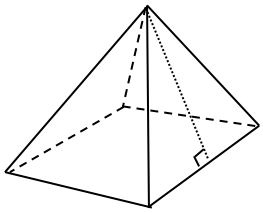
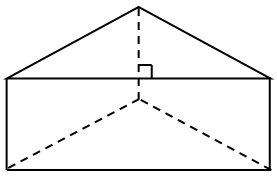
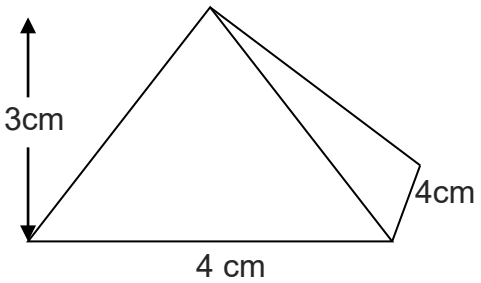
SURFACE AREA OF PYRAMIDS
APPLICATIONS

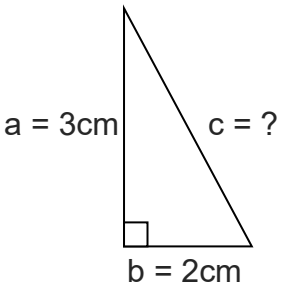
Q1. Explain the difference between the triangular prism and the square-based pyramid shown below.





Q2.





Complete the following to calculate the surface area of this square-based pyramid.

To find the sloped height of the triangle:

$$c^2 = a^2 + b^2$$
$$= 3^2 + 2^2$$
$$= 13$$
$$c = \sqrt{13}$$
$$= 3.6\text{cm}$$

To find the area of one triangle:

$$A = B \times H \div 2$$
$$= 4 \times 3.6 \div 2$$
$$=$$

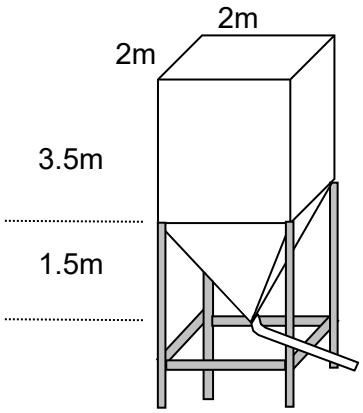
To find the area of the square bottom:

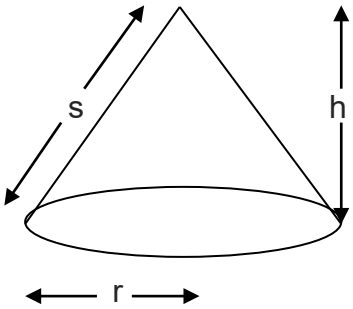
$$A = s \times s$$
$$=$$
$$=$$

To find the total surface area of the pyramid:

SA =

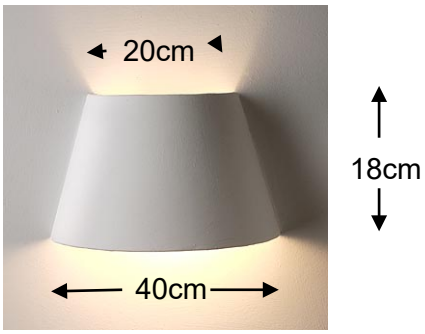
Q3. The grain hopper on the right consists of a rectangular prism above an inverted pyramid which funnels the contents into the outlet pipe. Its roof is a flat surface.
Find the total surface area of the walls of the hopper.
(Hint: Use Pythagoras's Rule to find the sloped height of the funnel's pyramid.)





Q4. The rule for the surface area of a closed cone is π r s + π r2.
Complete the table for the surface area of each closed cone whose dimensions are shown. (Hint: Use Pythagoras's Rule to find the slant height.)

	Radius (r)	Perpendicular Height (h)	Slant Height (s)	SA of Cone
(a)	3	4	5	
(b)	5	12	13	
(c)	7	24		
(d)	9 cm	12 cm		
(e)	15 cm	20 cm		



Q5. This lampshade is a truncated cone (a large cone minus a small cone).
Given that the small diameter is 20 cm, the large diameter is 40cm and the sloped height of the lampshade is 18cm, how much fabric is used to make this lampshade?
(Hint: Draw a side-view diagram.)

ANSWERS

Q1. A pyramid comes to a sharp point, but a prism does not.

Q2. 44.8 cm^2

Q3. 46.4 m^2

Q4. (a) 75.36
(b) 282.6
(c) 703.36
(d) 678.24 cm^2
(e) 1884 cm^2

Q5. 1695.6 cm^2