

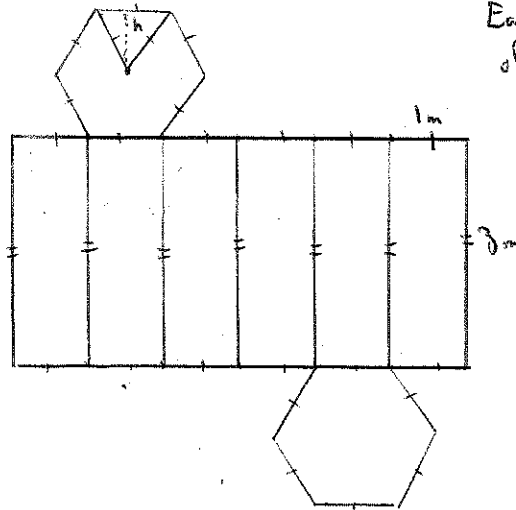
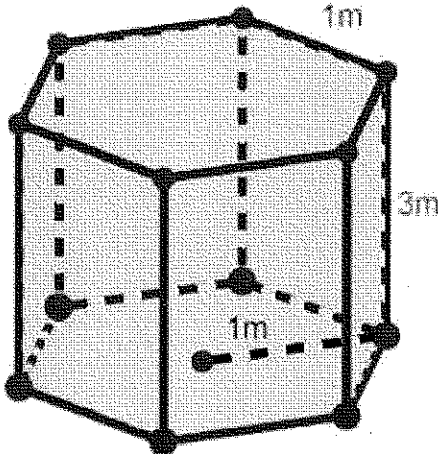
Name: Key

Block:



Surface Area 4 - Nets and Surface Area

Draw proportional nets for the following shapes. Appropriate measurements should be included for each side-length, with hash marks to indicate equal side-lengths. Then, compute the surface area of each shape to one decimal place. You will have to use the Pythagorean Theorem. (regular hexagon prism) Think about how you could find the area of the hexagon.



Each hex is made of 6 equilateral triangles, with base 1m.

$$h^2 + 0.5^2 = 1^2$$

$$h^2 + 0.25 = 1$$

$$h^2 = 0.75m^2$$

$$h = 0.866m$$

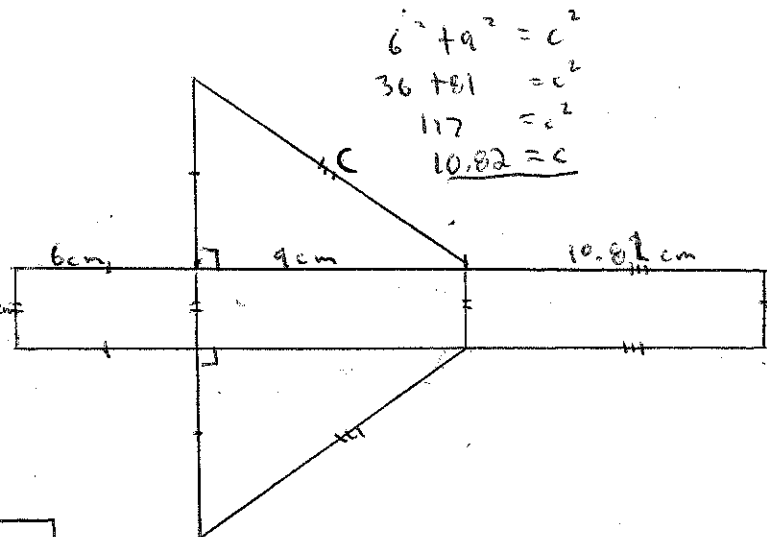
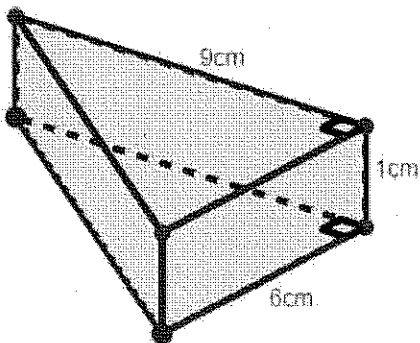
$$SA = 2 \text{ hex} + \text{rect}$$

$$= 12 \Delta + \text{rect}$$

$$= 12 \left(\frac{1m \times 0.866m}{2} \right) + 3m \times 6m$$

$$= 23.2 m^2$$

(right triangular prism) Find the missing side-length! Make sure you have **right** triangles!



$$6^2 + 9^2 = c^2$$

$$36 + 81 = c^2$$

$$117 = c^2$$

$$10.82 = c$$

$$SA = 2 \Delta + \text{rect}$$

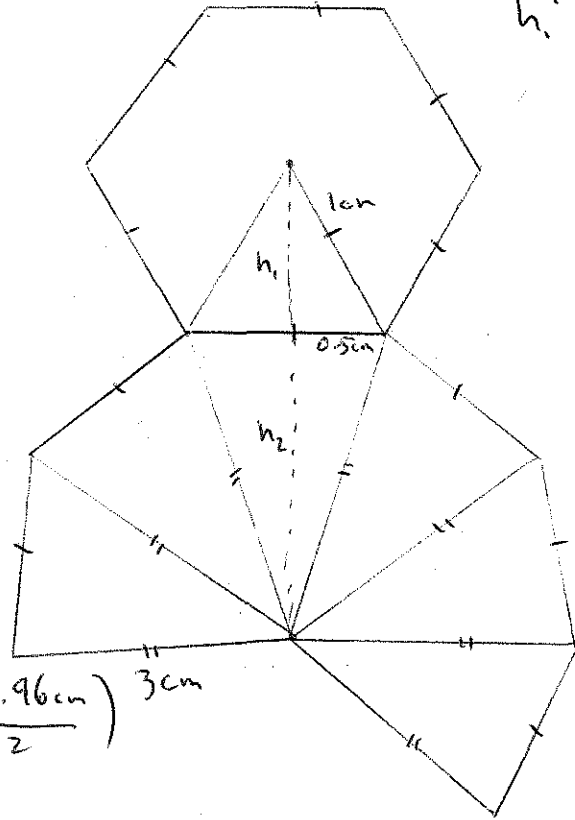
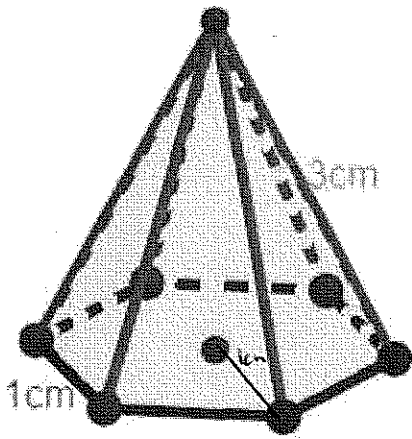
$$= 2 \left(\frac{bh}{2} \right) + 1cm \times (6cm + 9cm + 10.82cm)$$

$$= 2 \left(\frac{6cm \times 9cm}{2} \right) + 1cm \times (25.82cm)$$

$$= 54cm^2 + 25.82cm^2$$

$$= 79.82cm^2$$

(regular hexagonal pyramid)



$$h_1^2 + (0.5\text{cm})^2 = (1\text{cm})^2$$

$$h_1^2 + 0.25\text{cm}^2 = 1\text{cm}^2$$

$$h_1^2 = 0.75\text{cm}^2$$

$$h_1 = 0.866\text{cm}$$

$$h_2^2 + (0.5\text{cm})^2 = (3\text{cm})^2$$

$$h_2^2 + 0.25\text{cm}^2 = 9\text{cm}^2$$

$$h_2^2 = 8.75\text{cm}^2$$

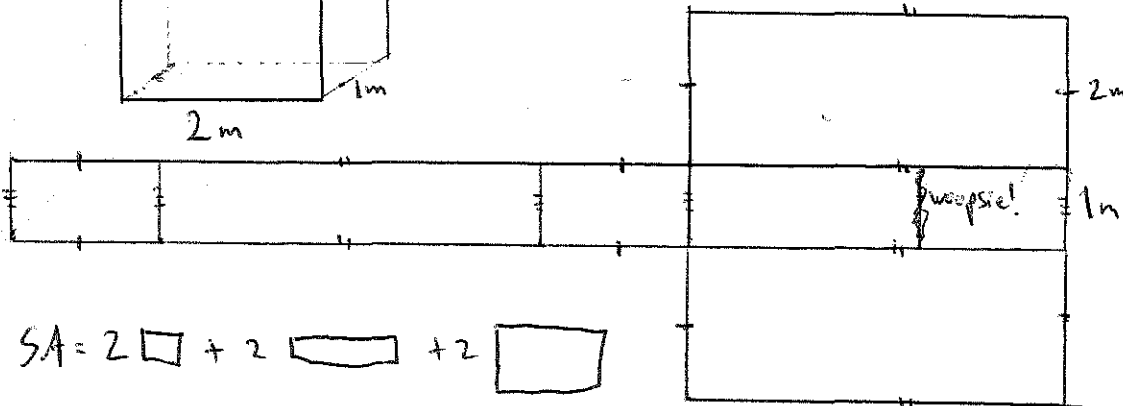
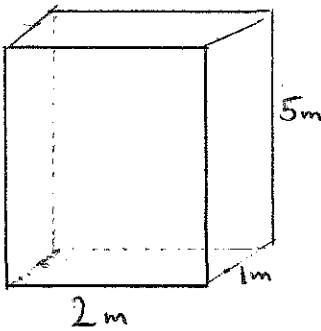
$$h_2 = 2.96\text{cm}$$

$$SA = 6\Delta + 6\Delta$$

$$= 6\left(\frac{1\text{cm} \times 0.866\text{cm}}{2}\right) + 6\left(\frac{1\text{cm} \times 2.96\text{cm}}{2}\right)$$

$$\approx 11.5\text{cm}^2$$

A rectangular prism with side lengths 2m, 1m, and 5m. Sketch the 3D figure, then draw a net and determine the surface area.



$$SA = 2\text{ } \square + 2\text{ } \text{---} + 2\text{ } \square$$

$$= 2(1\text{m} \times 2\text{m}) + 2(1\text{m} \times 5\text{m}) + 2(2\text{m} \times 5\text{m})$$

$$= 2(2\text{m}^2) + 2(5\text{m}^2) + 2(10\text{m}^2)$$

$$= 34\text{m}^2$$