READING COMPREHENSION EXERCISES ON TRIANGULAR PRISM AND CYLINDER VOLUME

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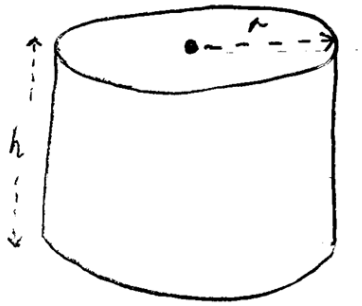
FORMULAE

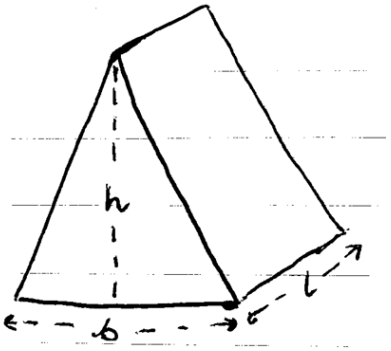
In order to complete **Exercise 1,** we should understand the following formulae.

1. The volume of a cylinder (V) is given by the formula $V = \pi \times r^2 \times h$, where r is the radius* of the cylinder, and h is the height of the cylinder.

   *The radius of the cylinder is the straight line distance from the centre of the cylinder's circular face to its edge. This radius is half of the cylinder's diameter. The cylinder's diameter is the straight line distance from one edge of the cylinder's circular face to the other, which passes through the centre of the circle.



2. The volume of a triangular prism (V) is given by the formula $V = \frac{1}{2} \times b \times h \times l$, where b is the base of the triangular face of the prism, h is the height of the triangular face of the prism and l is the length of the rectangular face of the triangular prism.



EXERCISE 1

Hal is a student taking a woodworking class. Today, his instructor, Ms. Lee, has instructed the class to practice creating small rectangular prisms out of elm wood. Her instructions for the dimensions of these prisms are as follows:

> *"The height of the triangular face of the prism must be thirty-five thousandths of a metre, whilst the base of the triangular face of the prism must be one and a half times as long as its height. The length of the rectangular face of the prism must be equal to the base of the triangular face of the prism plus one fifth of the base of the triangular face of the prism."*

1. Please determine the values of the height, base and length of the triangular prism that Hal must create for Ms. Lee in *cm*.

2. After each student had created at least one triangular prism, Ms. Lee brought out a large cylindrical glass jar from her office and placed it on a table in the centre of the workshop. The jar was completely filled with triangular prisms made from Elm wood. She said the following to the class:

> *"This jar has been filled with elm wood triangular prisms of the exact same dimensions that I have instructed you to make today. The student who guesses exactly or the closest to exactly how many prisms are in this jar will receive an automatic final grade of A in this class."*

Upon hearing this, all of the woodworking students eagerly clamoured around the jar. Some began counting the prisms aloud.

Hal is currently having his chance to observe the jar. He has noticed an extremely small engraving on the bottom, which reads:

> *"Height:* 3.69 *dm, diameter:* 174 *mm*"

How might Hal use this information to make the most accurate guess possible? What do you propose that his guess should be?