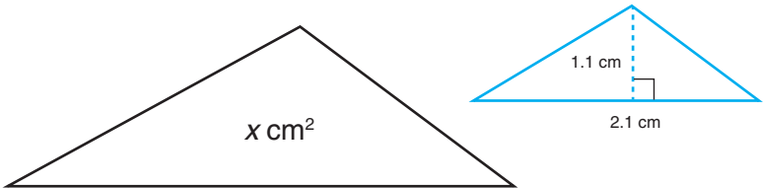
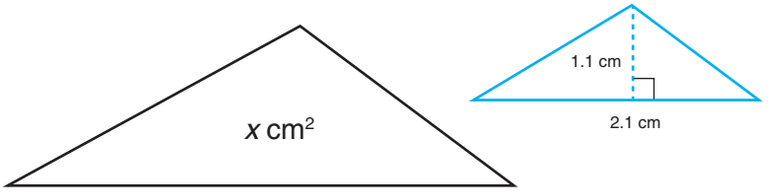
Practice Run

1. a. An original triangle (blue) and its enlargement are shown below. The scale factor is 2. Determine the area of the larger triangle.



Compare your answers.

1. a. An original triangle (blue) and its enlargement are shown below. The scale factor is 2. Determine the area of the larger triangle.



Method #1:

Area of the larger shape = area of the original shape $\times$ (scale factor)^2

Scale factor = 2

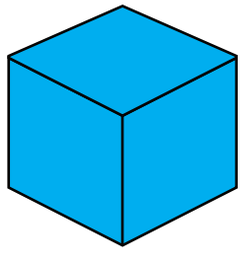
Area of original triangle: $A = \frac{1}{2}bh$ $A = \frac{1}{2}(2.1)(1.1)$ $A = 1.155$ cm^2	x = area of original triangle $\times$ (scale factor)^2 $x = 1.155 \times (2)^2$ $x = 4.62$ cm^2 The area of the larger triangle is 4.62 cm^2.

Method #2:
Using the scale factor of 2, determine the base and height of the larger triangle.

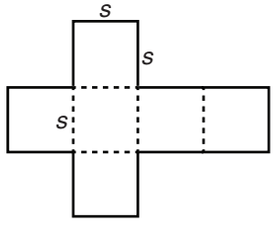
$k = \frac{\text{larger base}}{\text{original base}}$ $2 = \frac{b}{2.1}$ $4.2 \text{ cm} = b$	$k = \frac{\text{larger height}}{\text{original height}}$ $2 = \frac{h}{1.1}$ $2.2 \text{ cm} = h$	Area of larger triangle: $A = \frac{1}{2}bh$ $A = \frac{1}{2}(4.2)(2.2)$ $A = 4.62 \text{ cm}^2$ The area of the larger triangle is 4.62 cm^2.

E. Scale Factor and Surface Area

Surface area is the sum of the areas of the faces of a three-dimensional object. In the case of a cube, there are six faces, each with the same area. The width, length, and height of a cube are the same, so the edges can be represented by a single variable, s.



Net diagram of a cube



Formula for the surface area of a cube is

$$SA = 6s^2$$

The surface area of an enlarged or reduced object can be determined when the dimensions of the original object are known.