

Number Nest Weekly Challenge



Warm up

1. Simplify $\frac{14}{49} \times \frac{2}{7}$
2. What is an eighth of 1000? **125**
3. What is 38×74 ? **2812**
4. What is $\frac{8}{16} \times \frac{3}{2}$? Simplify your answer. $\frac{3}{4}$

Activity

1. Stewart is making soup which requires 180g of tomatoes, 120g of onions and 60g of mushrooms. If Stewart adds 90g of mushrooms, how much tomatoes and onions does he need to add?

The ratio of mushrooms to tomatoes is 1:3. Stewart adds 90g of mushrooms which is 1 x 90g of mushrooms, so 3 x 90 = 270g of tomatoes is needed.

$$\begin{array}{ccc} 1 & : & 3 \\ \times 90 \swarrow & & \searrow \times 90 \\ 90 & : & 270 \end{array}$$

The same method applies to the onions: the ratio of mushrooms to onions is 1:2

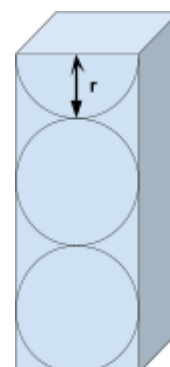
$$\begin{array}{ccc} 1 & : & 2 \\ \times 90 \swarrow & & \searrow \times 90 \\ 90 & : & 180 \end{array}$$

Therefore 270g of tomatoes and 180g of onions are needed.

2. Two and a half tennis balls fit into this box and the sides of the tennis balls touch the edges of the box. What is the ratio between the height and the width of the box?

The height of the box is 5r and the width of the box is 2r

So the ratio is 5r : 2r which is 5 : 2

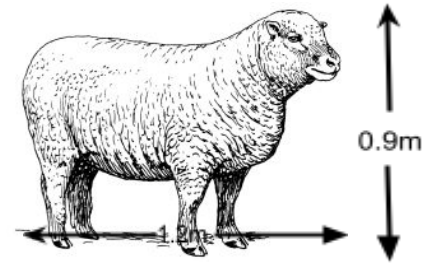


3. Daniel wishes to make a small model of Dolly the sheep. Sheep usually have a length of 1.2m and a height of 0.9m. If Daniel's model has a length of 16cm, how tall is his model?

1.2m = 120cm 0.9m = 90cm

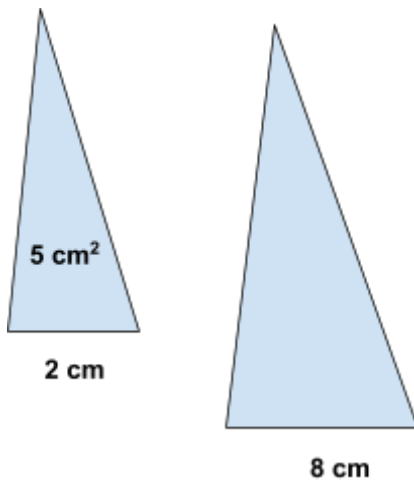
So the ratio of length to height is 120:90 which is 4:3.

$$\times 4 \left(\begin{array}{ccc} 4 & : & 3 \\ 16 & : & 12 \end{array} \right) \times 4$$



So Daniel's model is 12cm tall.

4. The two triangles below are similar, what is the area of the bigger triangle?



The length scale factor is $8 \div 2 = 4$. So the area scale factor is $4^2 = 16$. Therefore the area of the bigger triangle is $5 \times 16 = 80 \text{ cm}^2$

Puzzle

Count the number of triangles on the diagram below:

11

