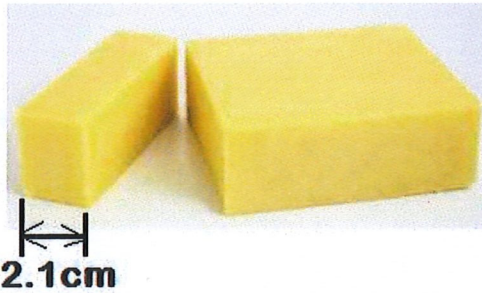
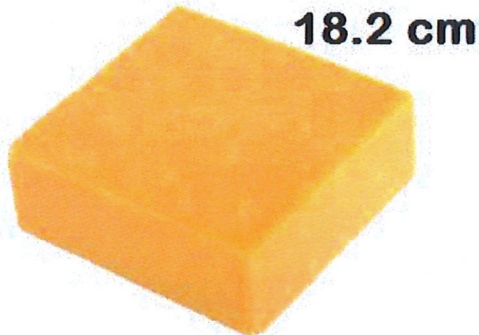


Problem Solving – Cheese Set [CHALLENGE]

Area, surface area, volume, circumference

<http://www.learnersgrid.com>

[1] Say, "Cheese!"



Round all answers to 1 d.p.

Mrs Stamwhistle bought a block of cheese. The block of cheese measured 18.2 cm by 18.2 cm, and it was 3.1 cm in height.

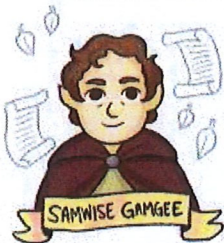
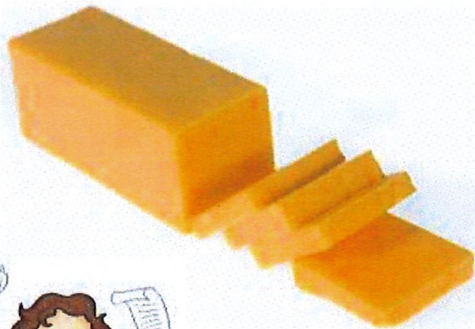
Mrs Stamwhistle was very pleased about her purchase and she planned to use the cheese for a lovely toasted sandwich later that day.

Unbeknownst to Mrs Stamwhistle, though, Mr Stamwhistle found the block of cheese and was so tempted that he sliced off a block 2.1 cm wide.

This small block Mr Stamwhistle took with him back outside into the garden where he munched the cheese down without a single thought about Mrs Stamwhistle's toasted sandwich plans.

What is the volume of cheese Mrs Stamwhistle still has in the cheese block that remains?

2] Say it again, Sam!



Round all answers to 1 d.p.

Samwise Gamgee had a block o' cheese and plonked it on the kitchen table, and then he got out a gigantic knife and... "snippity-snap-de-doo!", he just sliced that big ol' block o' cheese right up!

The original block of cheese measured 24 cm x 9.5 cm x 9.5 cm.

Samwise sliced the block of cheese into 12 identically-sized slices.

(a) Give the volume of the original block o' cheese.

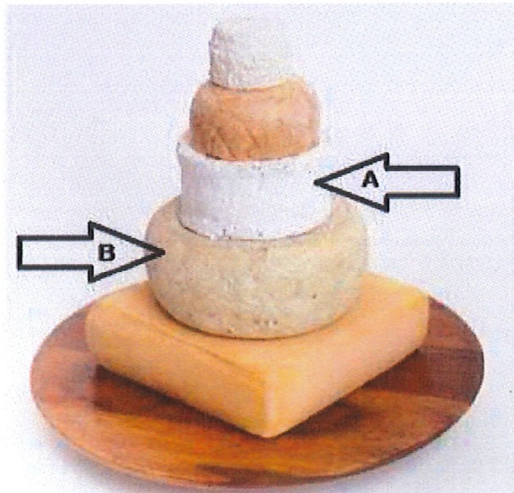
(b) Give the surface area of the original block o' cheese.

(c) Give the volume of one slice o' cheese.

(d) Give the surface area of one slice o' cheese.

(e) Give the total surface area of all 12 slices of cheese!

[3] **Cheese Wheels**



Round all answers to 1 d.p.

Strondle McAdams enjoyed rolling cheese wheels. He is an interesting person!

Anyway, he rolled cheese wheel A through 15 full rotations.

He rolled cheese wheel B through 17 full rotations.

Cheese wheel A has a radius of 4 cm.

Cheese wheel B has a diameter of 7 cm.

(a) How many centimetres did cheese wheel A travel?

(b) How many centimetres did cheese wheel B travel?

[4] **Flag of Guyana**



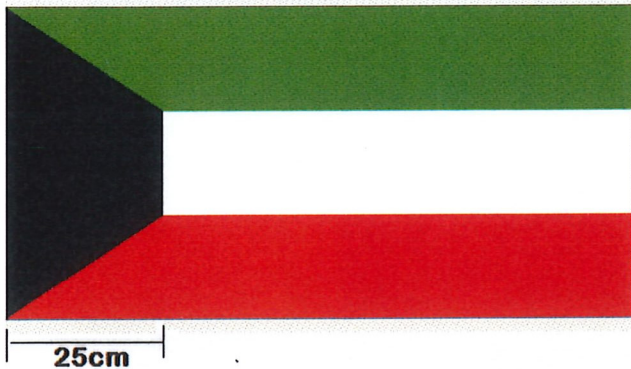
Round all answers to 1 d.p.

This flag is 2.6 metres in length and 1.2 metres in width. This is the national flag of Guyana. The official name of Guyana is the “Co-operative Republic of Guyana”, and this country is in South America.

(a) Give the total area of the black outline of the red triangle and the red triangle combined – if you consider that the black outline reaches half the length of the flag.

(b) Give the total area of both green triangles combined.

[5] **Flag of Kuwait**



Round all answers to 1 d.p.

This flag is 2.2 metres in length and 96 centimetres in width. This is the national flag of Kuwait. The official name of Kuwait is the “State of Kuwait”, which is cool because it rhymes. This oil-rich country is in the Middle East.

(a) Give the total area of the black part of this flag.

(b) Give the total area of both green and red trapeziums combined – bearing in mind that the red, white, and green stripes divide the width of the flag into equal thirds.

[6] **New House**



Round all answers to 1 d.p.

Cameron Holder has built a new house. Because Cameron likes to be special, he has decided to build a weird-looking house. That’s Cameron! He’s special.

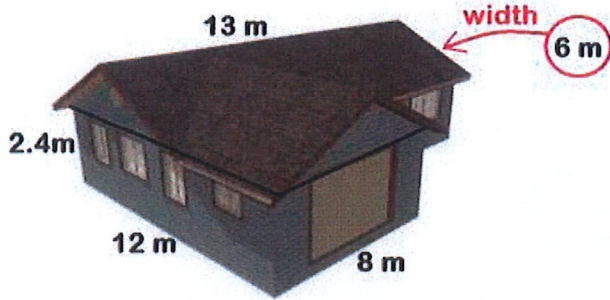
Anyway, the square window in the wall is 1.4 metres long. The base of the house is seven times longer than the window. The top edge of the house is 9 times as long as the window.

The height of the house is 2-and-a-half times the height of the window.

(a) Give the total area of this wall of the house (INCLUDING the window).

(b) Give the total area of this wall of the house (EXCLUDING the window).

[7] **House – Turn the Volume Down!**



Round all answers to 1 d.p.

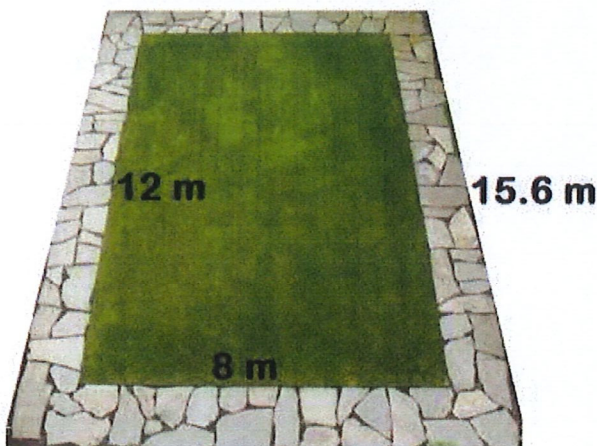
Let's exclude the roof and the roofline – OK!?

So let's take note of the dimensions of this house. The height (excluding the roofline) is 2.4 metres.

The far side of the house (the side you can't see) is 13 metres long. The far end of the house (the end you can't see) is 6 metres long.

Give the volume of this house.

[8] **My Lawn!**



11.6 m

Round all answers to 1 d.p.

My lawn is a perfect rectangle and it measures 12 metres by 8 metres.

It really does!

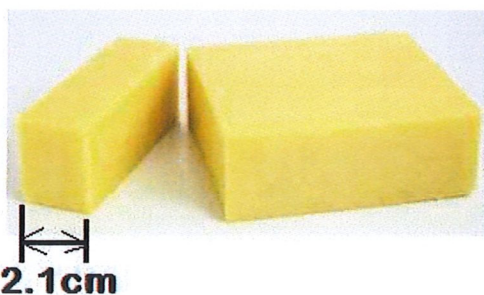
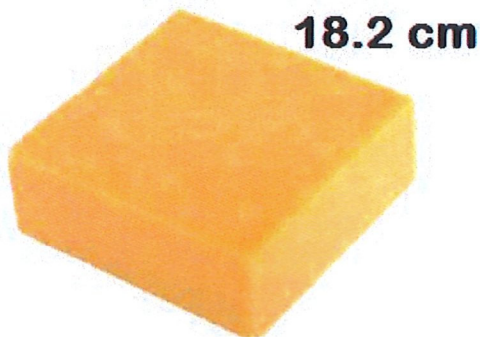
Last week, I lay down a cool path around the lawn.

Give the area of this cool path.

Problem Solving – Cheese Set [CHALLENGE]

Area, surface area, volume, circumference **SOLUTIONS** <http://www.learnersgrid.com>

[1] **Say, "Cheese!"**



Round all answers to 1 d.p.

Mrs Stamwhistle bought a block of cheese. The block of cheese measured 18.2 cm by 18.2 cm, and it was 3.1 cm in height.

Mrs Stamwhistle was very pleased about her purchase and she planned to use the cheese for a lovely toasted sandwich later that day.

Unbeknownst to Mrs Stamwhistle, though, Mr Stamwhistle found the block of cheese and was so tempted that he sliced off a block 2.1 cm wide.

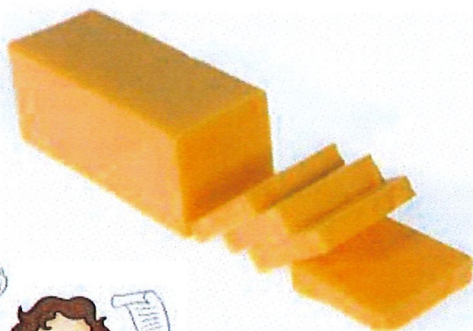
This small block Mr Stamwhistle took with him back outside into the garden where he munched the cheese down without a single thought about Mrs Stamwhistle's toasted sandwich plans.

What is the volume of cheese Mrs Stamwhistle still has in the cheese block that remains?

$$2.1 \times 18.2 \times 3.1 = 908.362$$

$$= \boxed{908.4 \text{ cm}^3}$$

2] **Say it again, Sam!**



Round all answers to 1 d.p.

Samwise Gamgee had a block o' cheese and plonked it on the kitchen table, and then he got out a gigantic knife and... "snippity-snap-de-doo!", he just sliced that big ol' block o' cheese right up!

The original block of cheese measured 24 cm x 9.5 cm x 9.5 cm.

Samwise sliced the block of cheese into 12 identically-sized slices.

(a) Give the volume of the original block o' cheese.

$$2,166 \text{ cm}^3$$

(b) Give the surface area of the original block o' cheese.

$$1092.5 \text{ cm}^2$$

(c) Give the volume of one slice o' cheese.

$$180.5 \text{ cm}^3$$

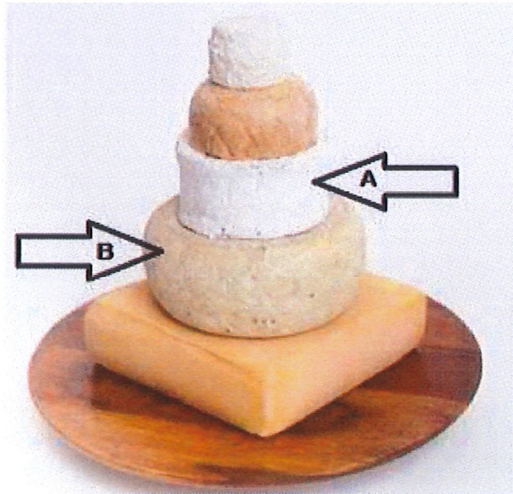
(d) Give the surface area of one slice o' cheese.

$$256.5 \text{ cm}^2$$

(e) Give the total surface area of all 12 slices of cheese!

$$1092.5 \text{ cm}^2$$

[3] **Cheese Wheels**



Round all answers to 1 d.p.

Strondle McAdams enjoyed rolling cheese wheels. He is an interesting person!

Anyway, he rolled cheese wheel A through 15 full rotations.

He rolled cheese wheel B through 17 full rotations.

Cheese wheel A has a radius of 4 cm.

Cheese wheel B has a diameter of 7 cm.

(a) How many centimetres did cheese wheel A travel?

$$8\pi \times 15 = 376.99$$

$$= \boxed{376 \text{ cm}}$$

(b) How many centimetres did cheese wheel B travel?

$$373.849 \text{ cm}$$

$$= \boxed{373.8 \text{ cm}}$$

[4] **Flag of Guyana**



Round all answers to 1 d.p.

This flag is 2.6 metres in length and 1.2 metres in width. This is the national flag of Guyana. The official name of Guyana is the "Co-operative Republic of Guyana", and this country is in South America.

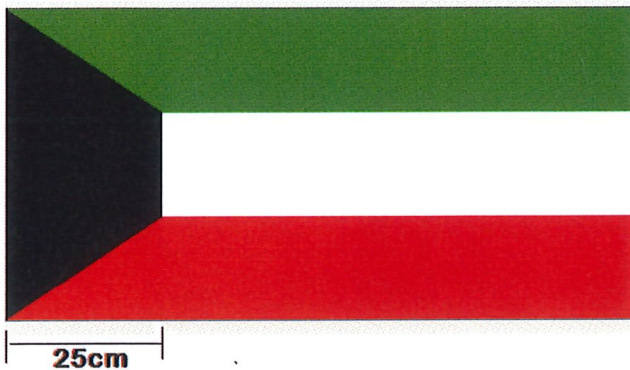
(a) Give the total area of the black outline of the red triangle and the red triangle combined – if you consider that the black outline reaches half the length of the flag.

$$\boxed{0.78 \text{ m}^2} \text{ or } \boxed{7,800 \text{ cm}^2}$$

(b) Give the total area of both green triangles combined.

$$\boxed{1.56 \text{ m}^2} \text{ or } \boxed{15,600 \text{ cm}^2}$$

[5] **Flag of Kuwait**



Round all answers to 1 d.p.

This flag is 2.2 metres in length and 96 centimetres in width. This is the national flag of Kuwait. The official name of Kuwait is the "State of Kuwait", which is cool because it rhymes. This oil-rich country is in the Middle East.

(a) Give the total area of the black part of this flag.

0.16 m^2 or $1,600 \text{ cm}^2$

(b) Give the total area of both green and red trapeziums combined – bearing in mind that the red, white, and green stripes divide the width of the flag into equal thirds.

0.4656 m^2 or $4,656 \text{ cm}^2$

[6] **New House**



Round all answers to 1 d.p.

Cameron Holder has built a new house. Because Cameron likes to be special, he has decided to build a weird-looking house. That's Cameron! He's special.

Anyway, the square window in the wall is 1.4 metres long. The base of the house is seven times longer than the window. The top edge of the house is 9 times as long as the window.

The height of the house is 2-and-a-half times the height of the window.

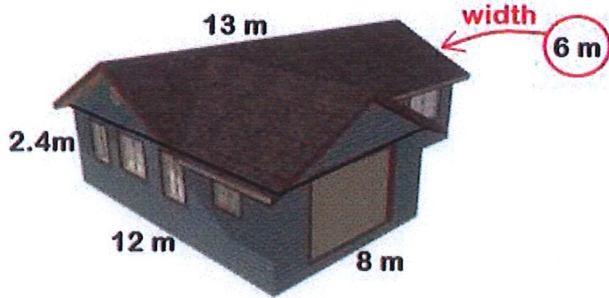
(a) Give the total area of this wall of the house (INCLUDING the window).

39.2 m^2

(b) Give the total area of this wall of the house (EXCLUDING the window).

$39.2 - 1.92 = 37.28 \text{ m}^2$

[7] **House – Turn the Volume Down!**



Round all answers to 1 d.p.

Let's exclude the roof and the roofline – OK!?

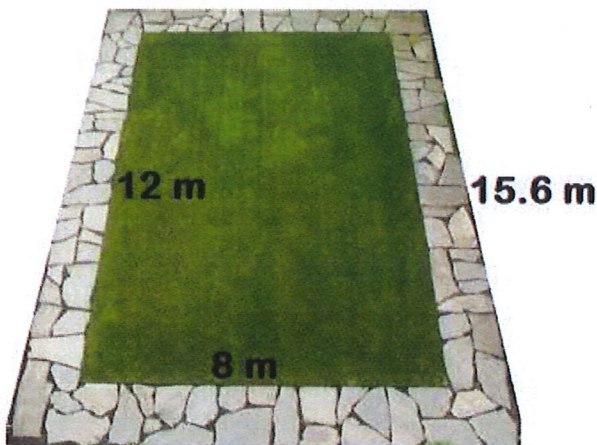
So let's take note of the dimensions of this house. The height (excluding the roofline) is 2.4 metres.

The far side of the house (the side you can't see) is 13 metres long. The far end of the house (the end you can't see) is 6 metres long.

Give the volume of this house.

$$302.4 \text{ m}^3$$

[8] **My Lawn!**



Round all answers to 1 d.p.

My lawn is a perfect rectangle and it measures 12 metres by 8 metres.

It really does!

Last week, I lay down a cool path around the lawn.

Give the area of this cool path.

$$84.96 \text{ m}^2 = 85 \text{ m}^2$$