



Reasoning Using Formulae

I can solve reasoning questions about using simple formulae.



Solve these reasoning questions using formulae:

Isla picks tomatoes from her vegetable patch and then sells them in boxes.

She charges 14p for each tomato and 25p for each box. A box can hold 12 tomatoes.

a) How much does it cost to buy 18 tomatoes in boxes?

b) How many tomatoes are in 3 boxes costing £4.39?

The base of Jack's rabbit hutch is a rectangle. The length measures 2.8m and the width measures 1.7m.

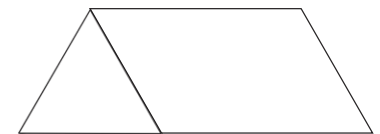
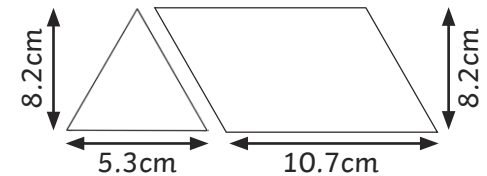
Calculate the area and perimeter of the base of the rabbit hutch.

area =

perimeter =

When an equilateral triangle and parallelogram are placed next to each other, they create a trapezium.

Calculate the area of the trapezium. Round your answers to the nearest cm^2 .



area of trapezium =

Reasoning Using Formulae

I can solve reasoning questions about using simple formulae.



Solve these reasoning questions using formulae:

Amena bakes cupcakes and then sells them in boxes. She charges £1.25 for each cupcake and 35p for each box. A box can hold 6 cupcakes.

a) How much does it cost to buy 24 cupcakes in boxes?

b) How many cupcakes are in 5 boxes costing £35.50?

The base of Ola's tent is a rectangle. The length measures 2.45m and the width measures 1.75m.

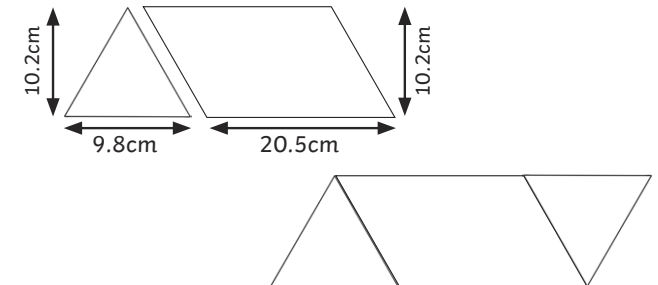
Calculate the area and perimeter of the base of the tent. Round your answers to the nearest cm.

area =

perimeter =

When two equilateral triangles are placed at either end of a parallelogram, a larger parallelogram is created.

Calculate the area of the larger parallelogram. Round your answers to the nearest cm^2 .



area of larger parallelogram =

Reasoning Using Formulae

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Solve these reasoning questions using formulae:

Marcin is having a car boot sale and selling his old clothes. He charges £2.60 for each item of clothing and 20p for a bag to carry them in. A bag can hold 3 items of clothing.

a) How much does it cost to buy 13 items of clothing with bags to carry them?

b) How many items of clothing are sold in 10 bags costing £77.40?

Sami's climbing frame is a cuboid. The length measures 2.35m, the width measures 1.65m and the height measures 1.9m. Calculate the area and perimeter of the base and the volume of the whole climbing frame. Round your answers to the nearest cm.

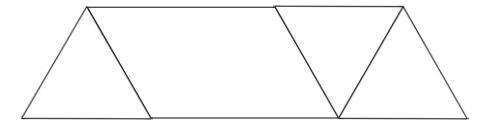
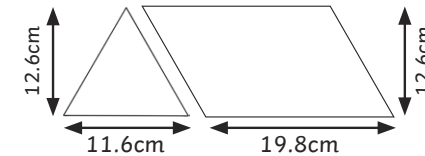
area =

perimeter =

volume =

When three equilateral triangles are placed at either end of a parallelogram, a trapezium is created.

Calculate the area of the trapezium. Round your answers to the nearest cm^2 .



area of trapezium =



Reasoning Using Formulae Answers

Solve these reasoning questions using formulae:

Isla picks tomatoes from her vegetable patch and then sells them in boxes.

She charges 14p for each tomato and 25p for each box. A box can hold 12 tomatoes.

a) How much does it cost to buy 18 tomatoes in boxes?

$$(18 \times 14p) + (2 \times 25p) =$$

$$£2.52 + £0.50 = £3.02$$

b) How many tomatoes are in 3 boxes costing £4.39?

$$(\text{number of tomatoes} \times 14p) + (3 \times 25p) = £4.39$$

$$(\text{number of tomatoes} \times 14p) + £0.75 = £4.39$$

$$(\text{number of tomatoes} \times 14p) = £4.39 - £0.75$$

$$(\text{number of tomatoes} \times 14p) = £3.64$$

$$\text{number of tomatoes} = £3.64 \div 14$$

$$\text{number of tomatoes} = 26$$

The base of Jack's rabbit hutch is a rectangle. The length measures 2.8m and the width measures 1.7m.

Calculate the area and perimeter of the base of the rabbit hutch.

$$\text{area} = 4.76\text{m}^2$$

$$2.8\text{m} \times 1.7\text{m}$$

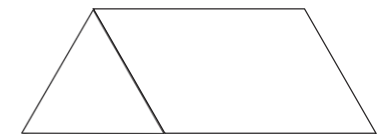
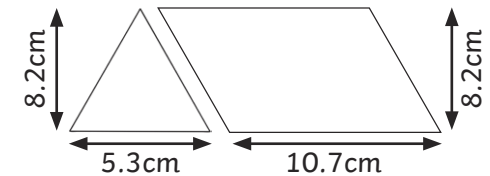
$$\text{perimeter} = 9\text{m}$$

$$(2.8\text{m} + 1.7\text{m}) \times 2$$

$$4.5\text{m} \times 2$$

When an equilateral triangle and parallelogram are placed next to each other, they create a trapezium.

Calculate the area of the trapezium. Round your answers to the nearest cm^2 .



$$\text{area of trapezium} = 110\text{cm}^2$$

$$\text{area of triangle} + \text{area of parallelogram}$$

$$\text{area of triangle} = 21.73\text{cm}^2$$

$$(5.3\text{cm} \times 8.2\text{cm}) \div 2$$

$$\text{area of parallelogram} = 87.74\text{cm}^2$$

$$(10.7\text{cm} \times 8.2\text{cm})$$



Reasoning Using Formulae Answers

Solve these reasoning questions using formulae:

Amena bakes cupcakes and then sells them in boxes. She charges £1.25 for each cupcake and 35p for each box. A box can hold 6 cupcakes.

a) How much does it cost to buy 24 cupcakes in boxes?

$$(24 \times \text{£}1.25) + (4 \times 35p) =$$

$$\text{£}30 + \text{£}1.40 = \text{£}31.40$$

b) How many cupcakes are in 5 boxes costing £35.50?

$$(\text{number of cupcakes} \times \text{£}1.25) + (5 \times 35p) = \text{£}35.50$$

$$(\text{number of cupcakes} \times \text{£}1.25) + \text{£}1.75 = \text{£}35.50$$

$$(\text{number of cupcakes} \times \text{£}1.25) = \text{£}35.50 - \text{£}1.75$$

$$(\text{number of cupcakes} \times \text{£}1.25) = \text{£}33.75$$

$$\text{number of cupcakes} = \text{£}33.75 \div \text{£}1.25$$

$$\text{number of cupcakes} = 27$$

The base of Ola's tent is a rectangle. The length measures 2.45m and the width measures 1.75m.

Calculate the area and perimeter of the base of the tent. Round your answers to the nearest cm.

$$\text{area} = 4.29\text{m}^2$$

$$2.45\text{m} \times 1.75\text{m}$$

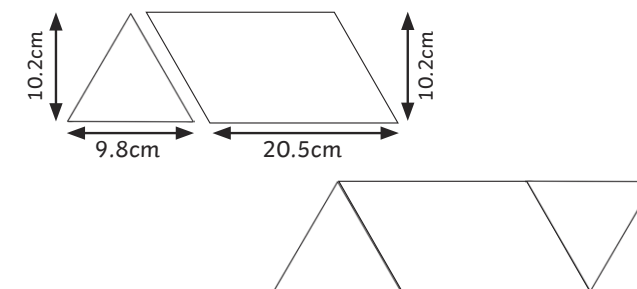
$$\text{perimeter} = 8.40\text{m}$$

$$(2.45\text{m} + 1.75\text{m}) \times 2$$

$$4.2\text{m} \times 2$$

When two equilateral triangles are placed at either end of a parallelogram, a larger parallelogram is created.

Calculate the area of the larger parallelogram. Round your answers to the nearest cm^2 .



$$\text{area of larger parallelogram} = 309\text{cm}^2$$

$$(\text{area of triangle} \times 2) + \text{area of parallelogram}$$

$$\text{area of triangle} = 50\text{cm}^2$$

$$(9.8\text{cm} \times 10.2\text{cm}) \div 2$$

$$\text{area of parallelogram} = 209\text{cm}^2$$

$$(20.5\text{cm} \times 10.2\text{cm})$$



Reasoning Using Formulae Answers

Solve these reasoning questions using formulae:

Marcin is having a car boot sale and selling his old clothes. He charges £2.60 for each item of clothing and 20p for a bag to carry them in. A bag can hold 3 items of clothing.

a) How much does it cost to buy 13 items of clothing with bags to carry them?

$$(13 \times \text{£}2.60) + (5 \times 20\text{p}) =$$

$$\text{£}33.80 + \text{£}1 = \text{£}34.80$$

b) How many items of clothing are sold in 10 bags costing £77.40?

$$(\text{number of items} \times \text{£}2.60) + (10 \times 20\text{p}) = \text{£}77.40$$

$$(\text{number of items} \times \text{£}2.60) + \text{£}2 = \text{£}77.40$$

$$(\text{number of items} \times \text{£}2.60) = \text{£}77.40 - \text{£}2$$

$$(\text{number of items} \times \text{£}2.60) = \text{£}75.40$$

$$\text{number of items} = \text{£}75.40 \div \text{£}2.60$$

$$\text{number of items} = 29$$

Sami's climbing frame is a cuboid. The length measures 2.35m, the width measures 1.65m and the height measures 1.9m. Calculate the area and perimeter of the base and the volume of the whole climbing frame. Round your answers to the nearest cm.

$$\text{area} = 3.88\text{m}^2$$

$$2.35\text{m} \times 1.65\text{m}$$

$$\text{perimeter} = 8\text{m}$$

$$(2.35\text{m} + 1.65\text{m}) \times 2$$

$$4\text{m} \times 2$$

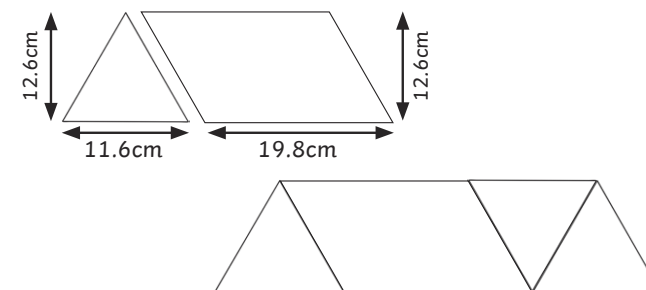
$$\text{volume} = 7.37\text{m}^3$$

$$\text{length} \times \text{width} \times \text{height}$$

$$3.88\text{m}^2 \times 1.9\text{m}$$

When three equilateral triangles are placed at either end of a parallelogram, a trapezium is created.

Calculate the area of the trapezium. Round your answers to the nearest cm^2 .



$$\text{area of trapezium} = 468\text{cm}^2$$

$$(\text{area of triangle} \times 3) + \text{area of parallelogram}$$

$$\text{area of triangle} = 73\text{cm}^2$$

$$(11.6\text{cm} \times 12.6\text{cm}) \div 2$$

$$\text{area of parallelogram} = 249\text{cm}^2$$

$$(19.8\text{cm} \times 12.6\text{cm})$$