

High School

Year 7 Mathematics Test – Metric System

Non Calculator Test

Name

1. Which of the following is not the same length as 240 centimetres?

2400 mm

2.4 m

240 cm

0.24 km

2. A Barn Owl has a wingspan of 1.1 m and a Grey Currawong has a wingspan of 83 cm. Which is true?

The Barn Owl has a 27 cm longer wingspan.

The Grey Currawong has a 27 cm longer wingspan.

The Barn Owl has a 819 mm longer wingspan.

The Grey Currawong has a 72 cm longer wingspan.

3. Which two units would be appropriate to measure the distance across a student's desk in a classroom?

kilometres or centimetres

millimetres or centimetres

metres or kilometres

millimetres or kilometres

4. The distance between Cairns and Kuranda is 29.1 km and the distance between Cairns and White Rock is 8 200 m. Which is closer to Cairns, White Rock or Kuranda, and by how many kilometres is it closer?

White Rock

is closer by

20.9

kilometres.

5. Which mass is equivalent to 3.26 kg?

32.6 g

326 g

3260 g

32 600 g

-
6. The total mass of the utility is 1.2 tonnes. If the motor in the utility weighs 180 kg, how much does the remainder of the vehicle weigh?

60 kg

168 kg

178.8 kg

1020 kg

-
7. A pack of Fancyful Biscuits has a mass of 220 g. Fancyful Biscuits are delivered to the store in cartons which hold 20 packs. The empty carton has a mass of 0.5 kg. What is the mass of the carton when it is full of 20 packs of biscuits?

4.4 kg

4.9 kg

4.45 kg

0.49 kg

-
8. Tony is writing a summary of some metric conversions. He has made one mistake. Which is incorrect?

 100 centimetres (cm) = 1 metre (m) 1000 millilitres (mL) = 1 litre (L) 10 000 kilograms (kg) = 1 tonne (t) 10 millimetres (mm) = 1 centimetre (cm)

-
9. A motorcycle has a fuel tank which holds 5.9 litres. When Evan pours 1400 ml of fuel into the tank, it is full. How many litres of fuel were in the tank before he filled it?

4 . 5

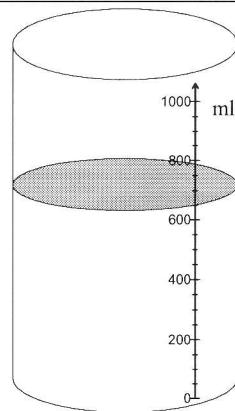
 litres.

-
10. Lashay wants to measure the mass of her pet labrador. Which should she use?

 A kitchen scale marked in 10 gram divisions. A bathroom scale marked in half kilogram divisions. A stock scale marked in 10 kilogram divisions. A truck scale marked in 100 kilogram divisions.

11. What is the amount of liquid in the measuring cylinder?

- 6.5 litres.
 6.2 litres.
 0.65 litres.
 0.62 litres.



12. Maddy times herself while running by counting seconds. She counts 550 seconds. How long was she running, in minutes and seconds?

9 minutes and 10 seconds.

13. Wil works three shifts in a week. The times for his shifts were

6:15 (six hours and fifteen minutes)
 8:20 (eight hours and twenty minutes)
 5:35 (five hours and thirty five minutes)

What were his total hours for the week?

20:10
11

20:00
12

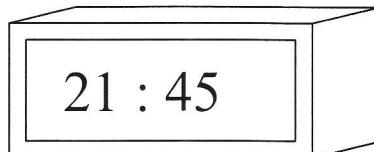
19:55
13

20:15
14

14. A movie starts at 6:20pm and finishes at 9:10 pm. What is the duration of the movie?

2 hours and 50 minutes.

15. Pete leaves home in Melbourne at 5:50 pm. He travels to visit his friend in Bendigo. When he enters his friend's house, he sees the digital clock below. How long did it take to reach his friends house?

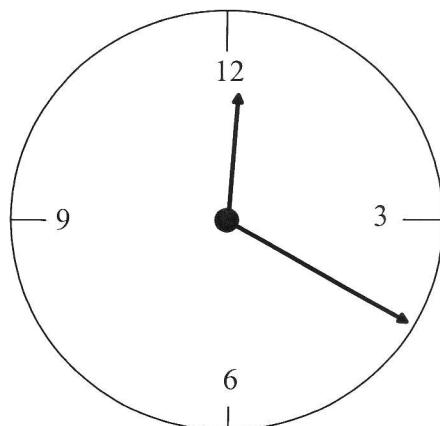


- 16 hours and 5 minutes 15 hours and 55 minutes
 4 hours and 5 minutes 3 hours and 55 minutes

16. Harriett leaves home one afternoon at the time shown on her watch. She returns home eight and three quarter hours later.

What time does she return home?

- 9 : 05 pm 8 : 05 pm
 8 : 55 pm 9 : 55 pm



17. A movie is listed as having a playing time of 2 hours and 35 minutes. Jacquie starts watching the movie at 15:22, by the clock in the lounge room. What time will the movie end, if she pauses it for 20 minutes in the middle to take a phone call?

18 : 17 or **6:17 p.m.**

18. The area of Centennial Parklands in Sydney is $1\ 895\ 000\ m^2$. How many hectares (ha) is this?

- 1.895 ha 18.95 ha 189.5 ha 1 895 ha

19. Jason designs a shield from plastic for use in a movie. The area of plastic in one shield is $2\ 150\ cm^2$. If the movie requires 40 shields, how many square metres of the plastic will be used?

- $860\ m^2$ $86\ m^2$ $8.6\ m^2$ $0.86\ m^2$

20. The information shown is about a water storage reservoir in South Australia. How many litres does the reservoir hold?

- 4.5 million litres
 4.5 billion litres
 45 million litres
 45 billion litres

Barossa Reservoir

Capacity: 4 515 megalitres

Length of wall: 144m

Height of wall: 28.6m

Area of water spread: 62 hectares

Questions 21 and 22 refer to the section of a railway timetable for a Monday afternoon which is shown below.

	Penrith	1:33	2:03	2:33	3:44	4:36
Kingswood	---	---	---	---	---	---
St Marys	---	---	---	---	---	---
Mount Druitt	---	---	---	---	---	---
Blacktown	1:48	2:18	2:48	3:59	4:51	
Seven Hills	---	---	---	---	---	---
Westmead	1:55	2:25	2:55	---	4:58	
Parramatta	1:58	2:28	2:58	4:10	5:01	
Granville	---	---	---	4:14	5:04	
Lidcombe	---	---	---	---	---	
Strathfield	2:10	2:40	3:10	4:25	5:15	
Redfern	---	---	---	---	---	
Central	2:23	2:53	3:23	4:37	5:28	

21. How long does the 1:33 train from Penrith take to get to Central?

50 minutes.

22. Yasmin needs to be at Parramatta for an appointment which is 10 minutes walk away from Parramatta station by 5:05pm. What is the latest train she could catch from Penrith if she wants to be on time?

2:03pm

2:33 pm

3:44 pm

4:36 pm

23. Mark measures the mass of 4 pieces of fruit. Which list shows the objects in order of increasing mass?

- Mandarin, Orange, Apple, Banana
- Mandarin, Apple, Orange, Banana
- Banana, Orange, Apple, Mandarin
- Orange, Apple, Banana, Mandarin

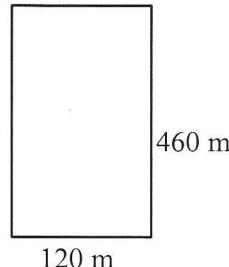
Banana : 210 g
Mandarin : 0.15 kg
Apple : 180 g
Orange : 0.2 kg

24. The time in Perth is three hours earlier than that in Sydney. If it is 6:45 pm in Sydney, what is the time in Perth?

3 : 45 pm.

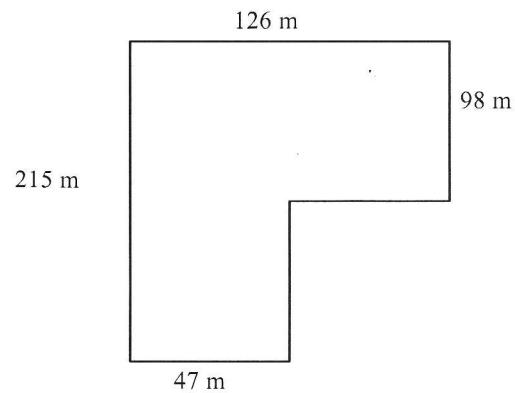
25. A rectangular field measures 120 metres by 460 metres. What is the perimeter of the field?

Perimeter = 1160 metres



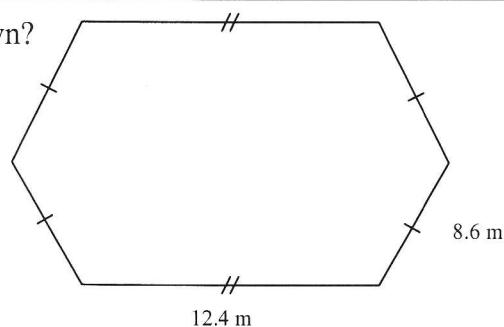
26. What is perimeter of the irregular block of land shown?

- 341 m
- 468 m
- 537 m
- 682 m



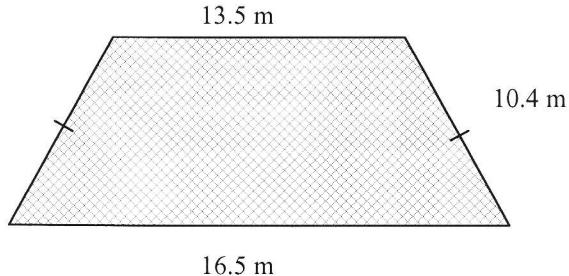
27. What is the perimeter of the shape shown?

- 21.0 m
- 46.8 m
- 59.2 m
- 42.0 m



28. The trapezoidal garden bed is to be edged with a plastic border that costs \$5.00/metre. What is the cost of edging the bed?

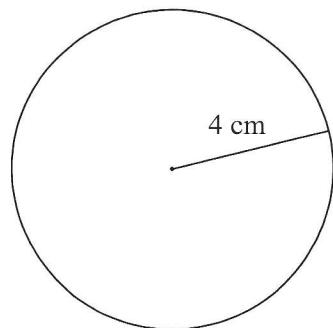
\$ 254.00



-
29. What is the circumference of the circle shown?

Use $\pi = 3.1$

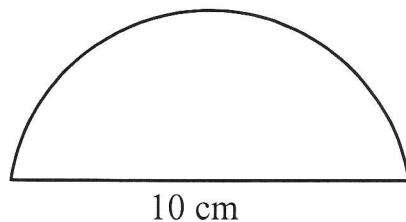
Circumference = 24.8 m



-
30. What is the perimeter of the semicircle shown?

Use $\pi = 3.14$

- 15.7 cm
- 25.7 cm
- 31.4 cm
- 41.4 cm



High School

Year
8

Test – Area of Plane Shapes

Calculator Test.

Name _____

1. A rectangle measures 0.9 m by 65mm. Its measurements in centimetres is

9 cm by 6.5 cm 9 cm by 65 cm 90 cm by 6.5 cm 90 cm by 65 cm

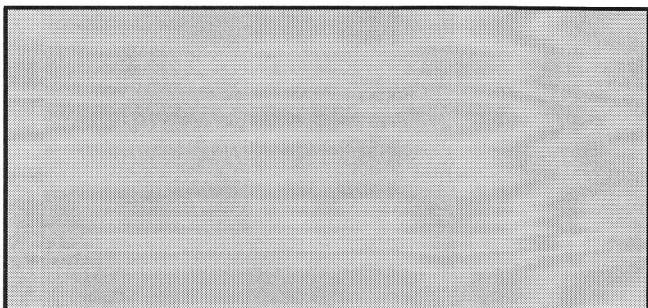
-
2. Which unit would be the most appropriate to measure the area of Australia.

Square kilometres Hectares Square metres Square centimetres

-
3. The area of a square field is exactly one hectare. The side length of the square is

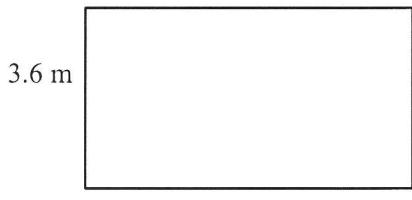
1000 m 500 m 200 m 100 m

-
4. By measuring the dimensions, find the area of the shaded rectangle below.



Area = cm²

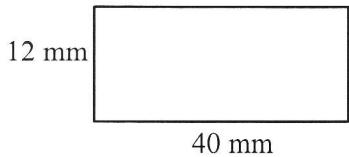
-
5. Marnie marks out a rectangular garden bed with the dimensions shown below. What is the area of the bed?

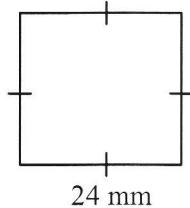


Area = m²

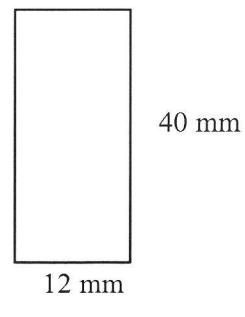
6. Which shape below has the greatest area?

Drawings not to scale.

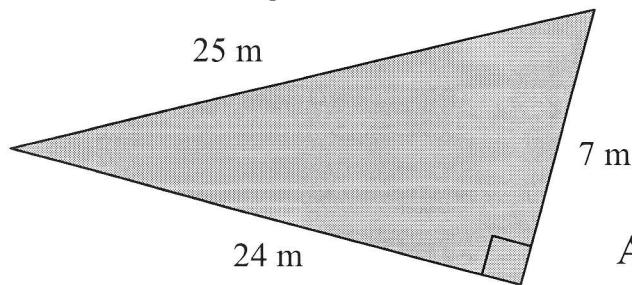








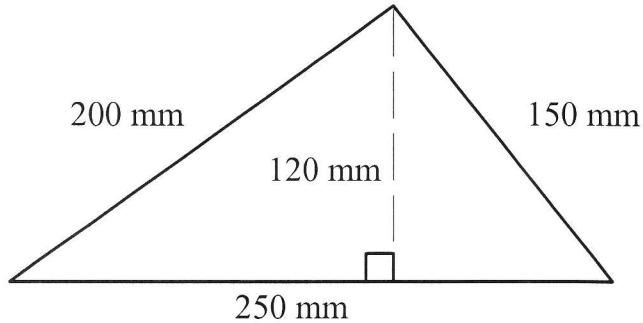
7. Ms Hills marks out the triangle below on the playground with chalk for a game. What is the area of the triangle?



$$\text{Area} = \boxed{84} \text{ m}^2$$

8. Find the area of the triangle.

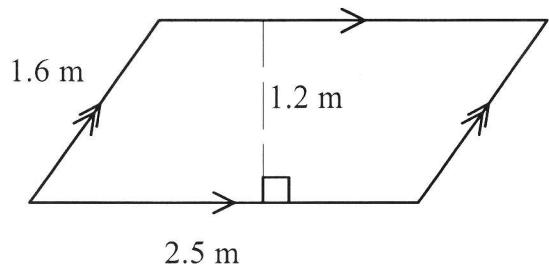
Drawing not to scale.



$$\text{Area} = \boxed{1500} \text{ mm}^2$$

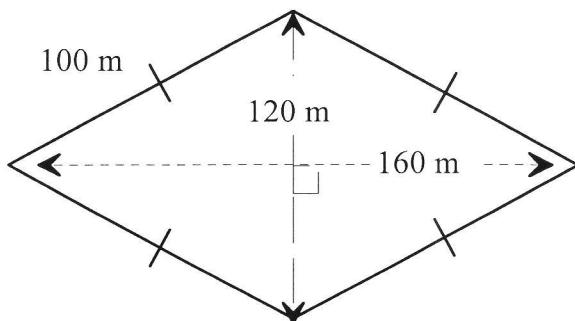
9. Find the area of the parallelogram.

Drawing not to scale.



$$\text{Area} = \boxed{3} \text{ m}^2$$

10. The rhombus shown has an area of:



Drawing not to scale.

$$19\ 200 \text{ m}^2$$

$$9\ 600 \text{ m}^2$$

$$12\ 000 \text{ m}^2$$

$$10\ 00 \text{ m}^2$$

11. A trapezium has a pair of parallel sides which measure 120 cm and 200 cm and which are 80 cm apart. The area of the trapezium is:

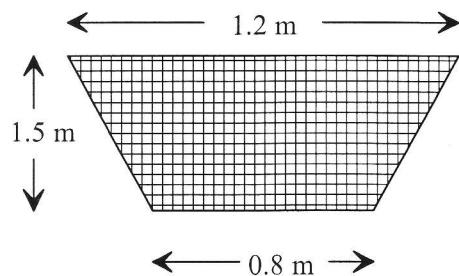
$$20\ 000 \text{ cm}^2$$

$$16\ 800 \text{ cm}^2$$

$$6\ 400 \text{ cm}^2$$

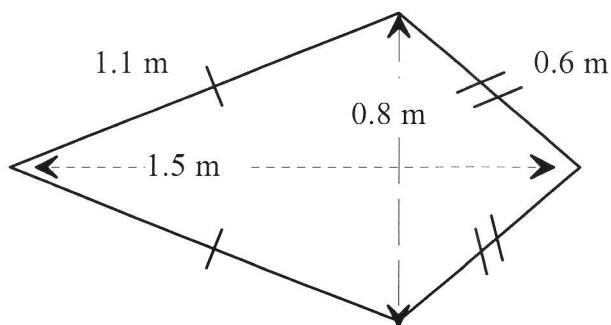
$$12\ 800 \text{ cm}^2$$

12. An opening to a vent has the shape shown below. What is the area of mesh that covers the vent?



$$\text{Area} = \boxed{1.5} \text{ m}^2$$

13. Wil builds a kite with the measurements shown. What is the area of the kite?



Drawing not to scale.

0.6 m^2

1.2 m^2

0.88 m^2

1.65 m^2

14. A circle has a radius of 16 cm. What is the area of the circle to the nearest square cm?

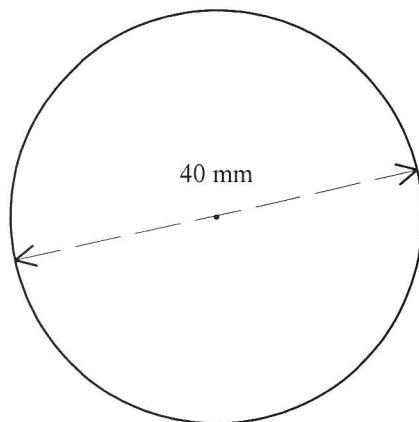
3217 cm^2

201 cm^2

804 cm^2

50 cm^2

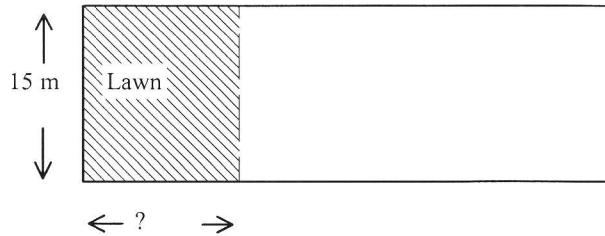
15. Find the area of the circle below.



Drawing not to scale.

Area = 1257 mm^2

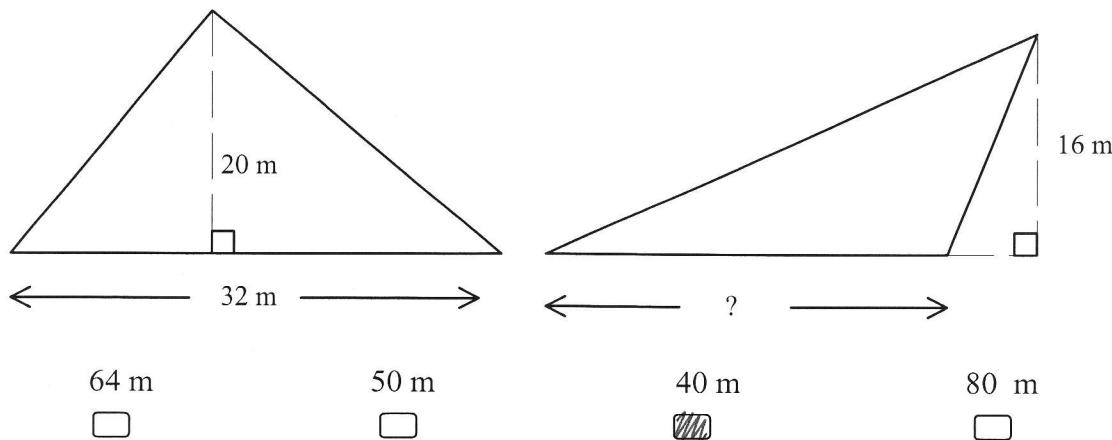
16. Mike has a rectangular block of land which is 15 m wide. He wants to plant the front with a lawn which has an area of 75 m^2 . How far back should the lawn be planted?



5 m

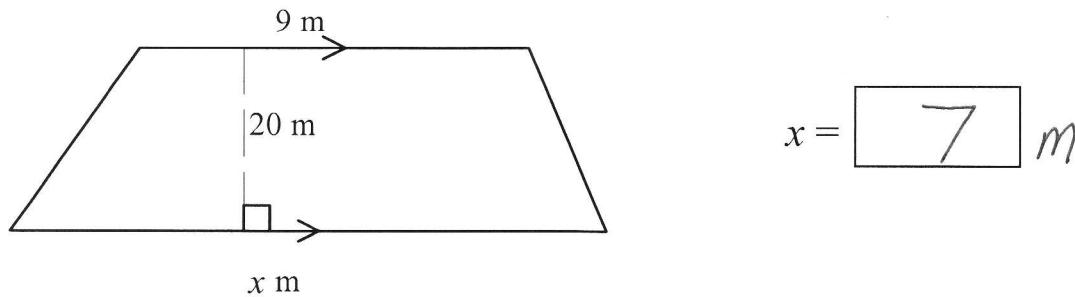
17. What is the length of the base of the second triangle, if the two triangles have the same area?

Drawings not to scale.

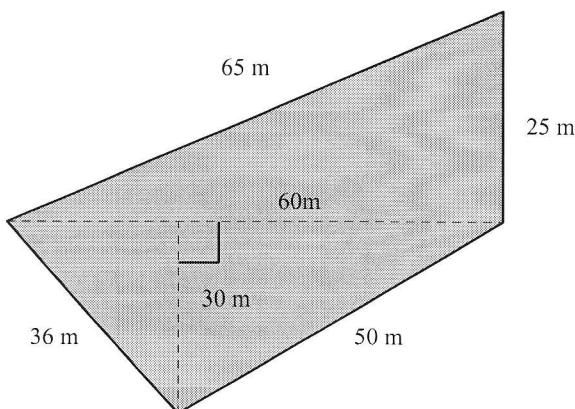


18. Find the value of x in the diagram below, if the trapezium has an area of 160 m^2 .

Drawing not to scale.



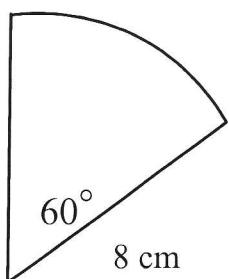
19. The diagram shows the dimensions of a playground at Kilmenny HS.



What is the area of the playground?

- 1200 m^2
- 1562 m^2
- 176 m^2
- 1650 m^2

20. The area of the sector of a circle shown below is:



Drawing not to scale.

201 cm^2

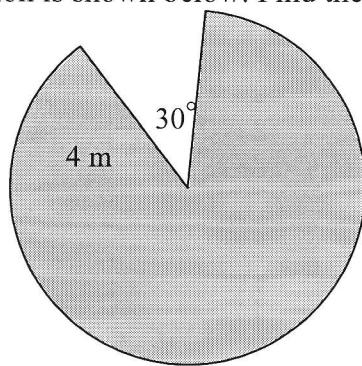
34 cm^2



67 cm^2

134 cm^2

21. A courtyard is circular and is paved except for a sector which has a gravel surface. The paved section is shown below. Find the area of the paved section.



Drawing not to scale.

50 m^2

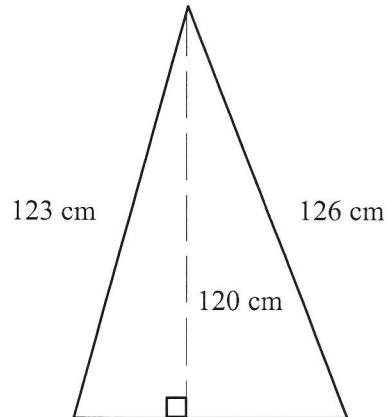
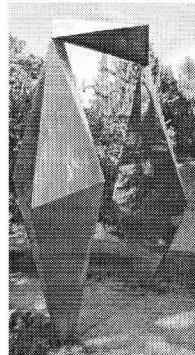
4 m^2

42 m^2

46 m^2



22. An arch in Orange Botanic Gardens is made of metal sheeting and consists of linked triangles. One of the triangles is shown, with its measurements. How many square metres of metal sheeting are needed for this triangle?



70 cm

0.84 m^2

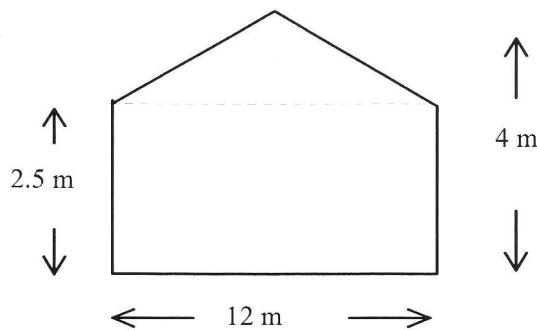
0.42 m^2



4.2 m^2

8.4 m^2

23. The end of a building is in the shape shown.
What is the area of the end of the building?



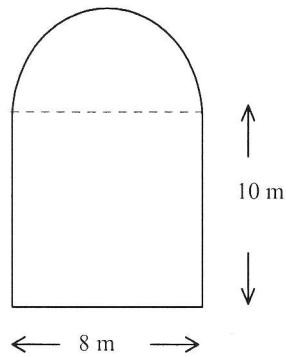
54 m^2

66 m^2

48 m^2

39 m^2

24. The pylon on the Sydney Harbour Bridge has an arch, a sketch of which is shown below along with its dimensions. What is the area of the inside of the arch?

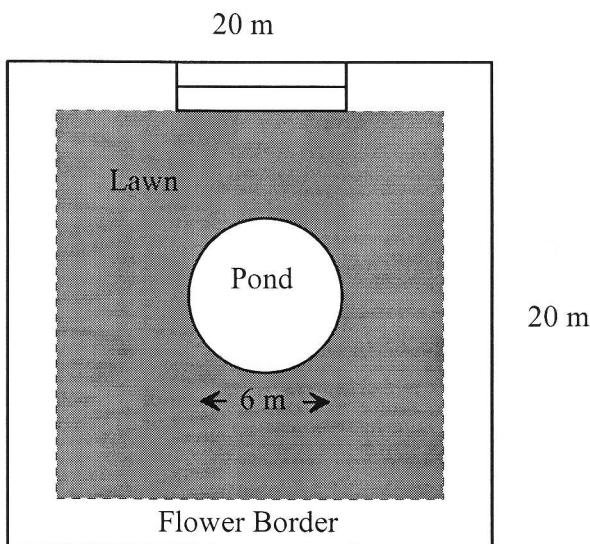


$$\text{Area} = \boxed{105} \text{ m}^2$$

25. A square section of a garden which measures 20 m on each side has a flower border which is 2 m wide around the outside of a lawn. The lawn has a circular pond of diameter 6 m in the middle.

What is the area of lawn (to the nearest square metre)?

$$\text{Area} = \boxed{228} \text{ m}^2$$



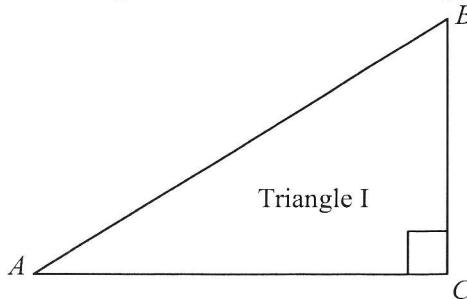
High School

Year 8 Mathematics Test –Pythagoras Theorem

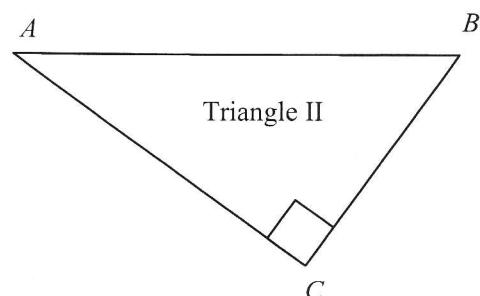
Calculator Test

Name _____

1. Which triangle below has AB as its hypotenuse?



Triangle I only



Triangle II only

Both Triangles.

Neither Triangle.

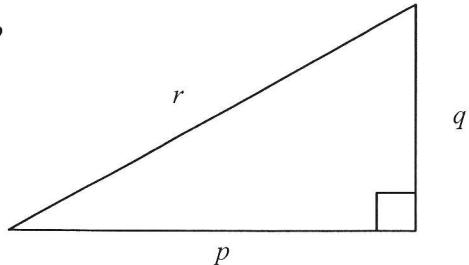
2. Which is the correct statement of Pythagoras Theorem for the triangle shown?

$p^2 + q^2 = r^2$

$r^2 + q^2 = p^2$

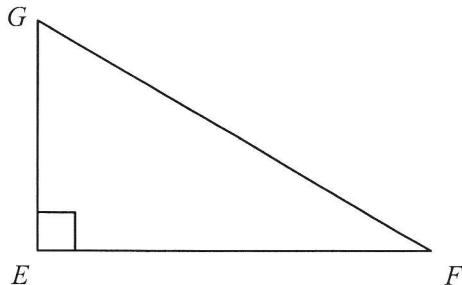
$p^2 + r^2 = q^2$

$q^2 + r^2 = p^2$



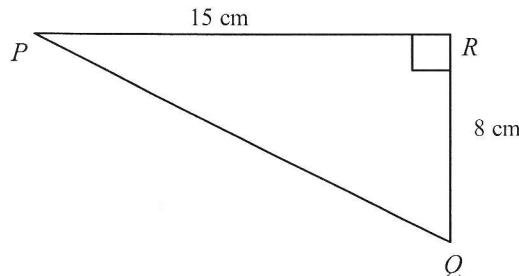
3. Complete the statement of Pythagoras Theorem for the triangle shown.

$$\boxed{GE}^2 + \boxed{EF}^2 = \boxed{GF}^2$$



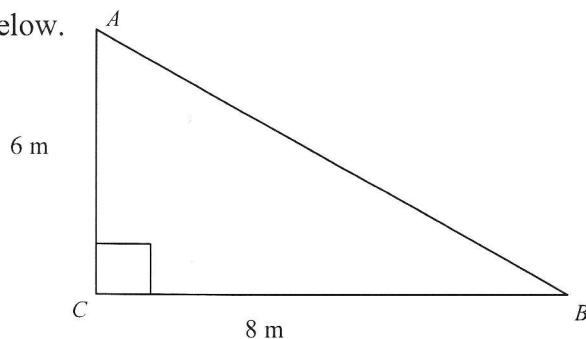
4. Find the length of the hypotenuse PQ in the triangle PQR .

$$PQ = \boxed{17} \text{ cm.}$$



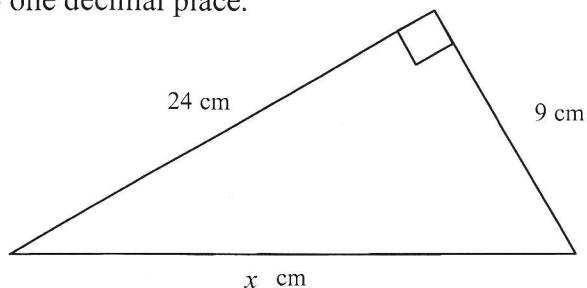
5. Find the length of AB in the triangle below.

- 5.3 m
- 14 m
- 10 m
- 3.7 m



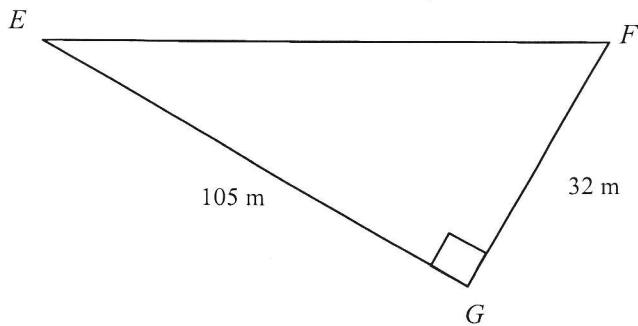
6. Calculate the value of x , correct to one decimal place.

$$x = \boxed{25.6} \text{ cm.}$$



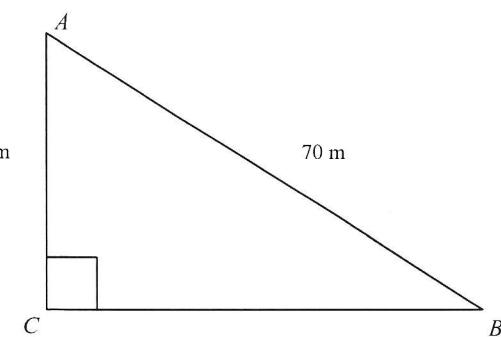
7. Find the distance EF to the nearest metre..

$$EF = \boxed{110} \text{ m.}$$



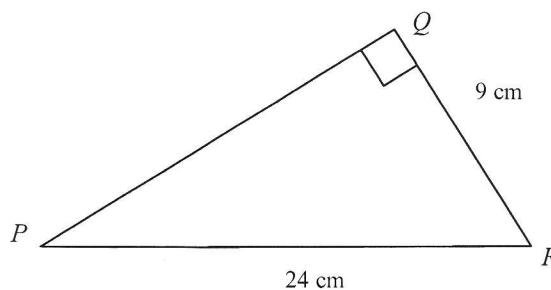
8. Find the length of AB in the triangle below.

- 28 m
- 56 m
- 31 366 m
- 81 m



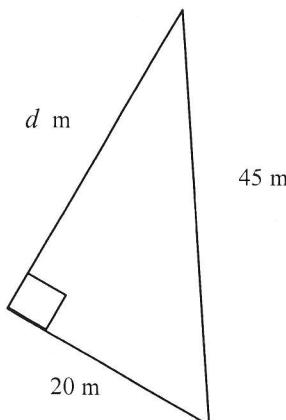
9. Find the length of the side PQ in the triangle PQR , correct to 2 decimal places.

$$PQ = \boxed{22.25} \text{ cm.}$$

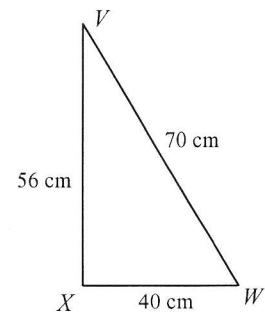
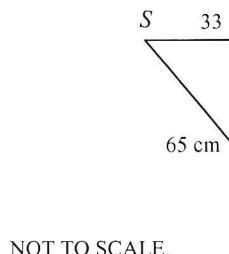


10. Find the distance d , to the nearest centimetre.

$$d = \boxed{1625} \text{ m.}$$



11. Which triangle is right angled?



- Triangle STU only. Triangle VWX only
 Both Triangles. Neither Triangle.

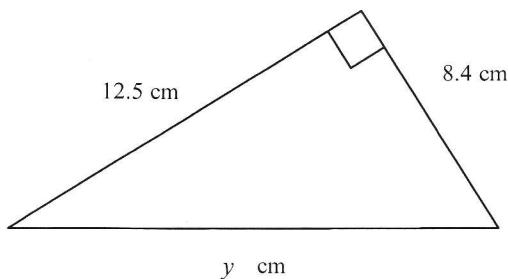
12. Which of the following are Pythagorean triads?
i.e. They could be the sides of a right angled triangle?

(16, 28, 34) (15, 30, 34) (16, 30, 34) (16, 30, 35)

-

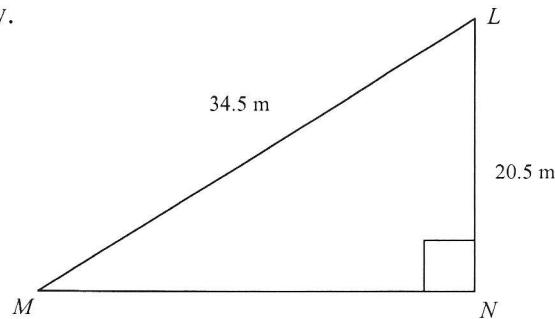
13. Calculate the value of y , correct to one decimal place.

$$y = \boxed{15.1} \text{ cm.}$$



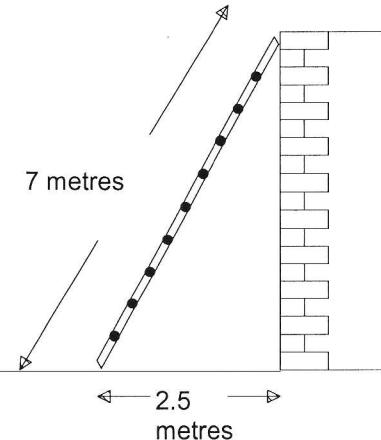
14. Find the length of MN in the triangle below.

- 3.7 m
- 40.1 m
- 14.0 m
- 27.7 m



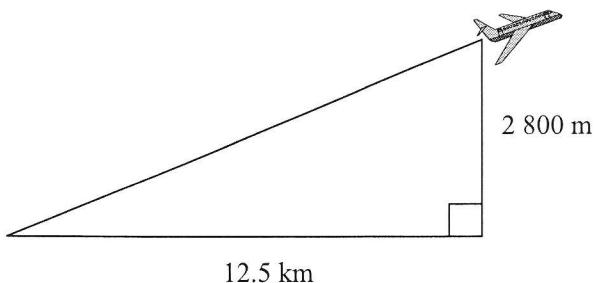
15. The ladder shown, leans against the top of the wall.
What is the height of the wall, correct to the nearest 10^{th} of a metre?

Height is $\boxed{6.5}$ metres.



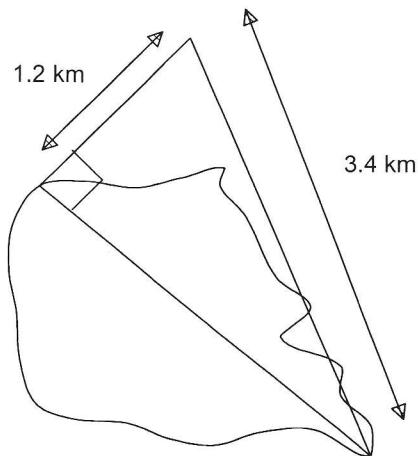
16. The plane climbs at a constant angle till it reaches a height of 2 800 m, while travelling 12.5 km relative to the ground. Calculate the distance that the plane has flown in a straight line, to the nearest 100 m.

Distance is $\boxed{12.8}$ km.



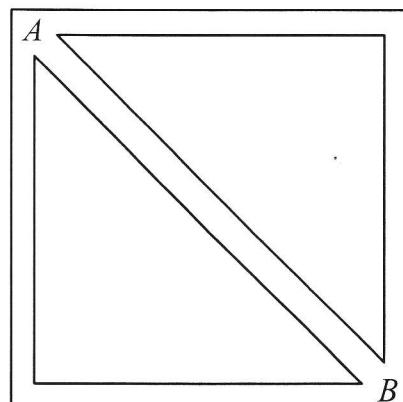
17. The measurements shown were taken to help calculate the width of the lake.
Calculate the width of the lake, to the nearest 100 m.

Width is 3.2 km.

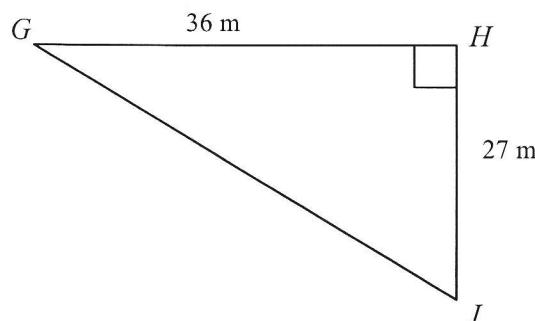


18. A square park which is 200 m on each side has a path around the outside and a diagonal path through the centre. Kayleigh wants to walk from A to B. How much further would she walk if she goes around the outside, rather than through the diagonal?

- 283 metres.
- 117 metres.
- 200 metres.
- 150 metres.



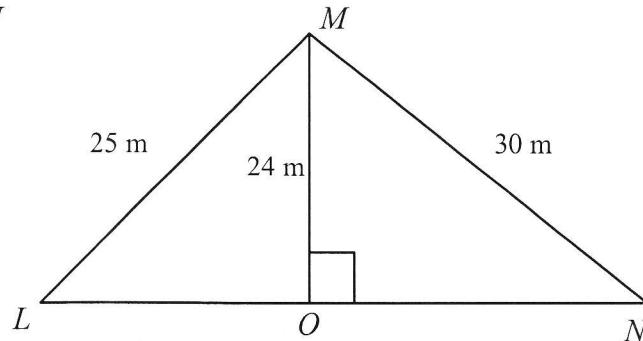
19. Find the perimeter of the triangle GHI.



Perimeter is 108 m.

20. Find the area of the triangle LMN

Area is 300 m^2 .



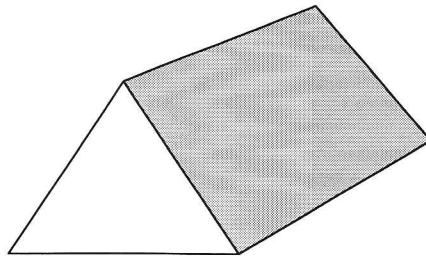
High School

Year 8 Mathematics Test –Volume and Surface Area

Calculator Test

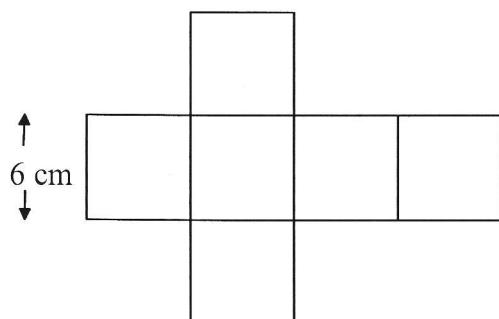
Name _____

1. A right triangular prism is shown below. Which statement is true?



- The prism has three triangular faces and two rectangular faces.
 - The prism has two triangular faces and two rectangular faces.
 - The prism has two triangular faces and three rectangular faces.
 - The prism has three triangular faces and three rectangular faces.
-

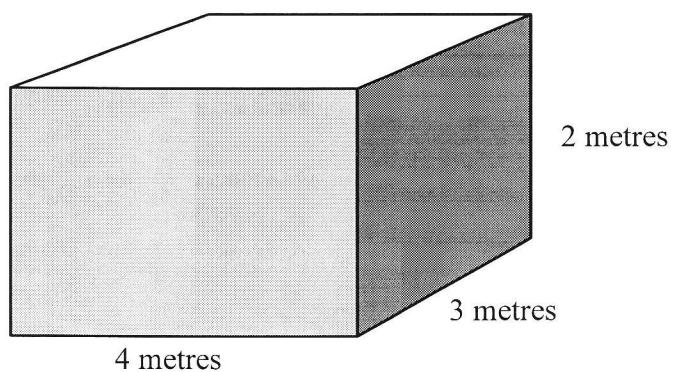
2. A cube has the net shown below. What is the total area of all the faces of the cube?



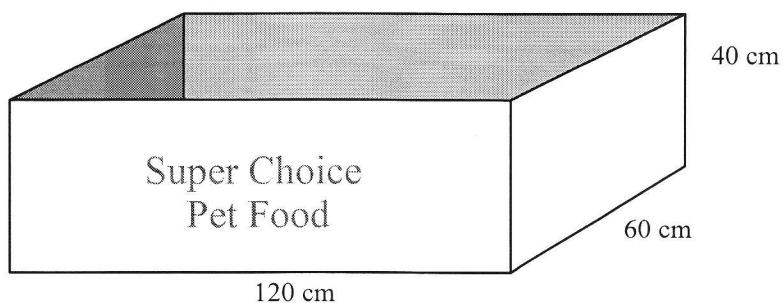
- 180 cm^2
 - 72 cm^2
 - 216 cm^2
 - 144 cm^2
-

3. Find the surface area of the rectangular prism shown below.

$$\text{Surface area} = \boxed{52} \text{ m}^2$$



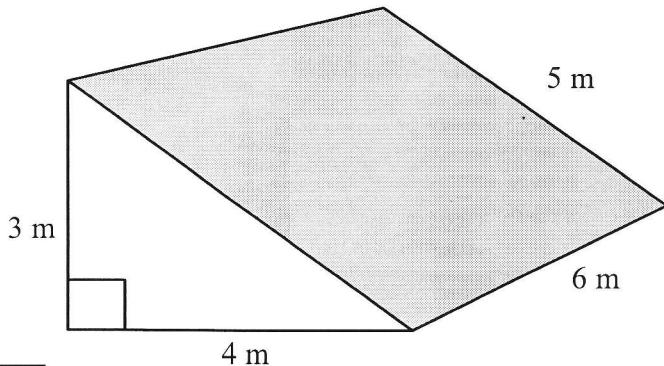
4. A cardboard box, which is open at the top, has the measurements shown. What is the area of cardboard needed for the box?



28 800 cm^2 21 600 cm^2 14 400 cm^2 16 800 cm^2

5. A ramp for a jump in a car show is in the shape of a right triangular prism and is made of plywood on all of its faces, including the bottom.

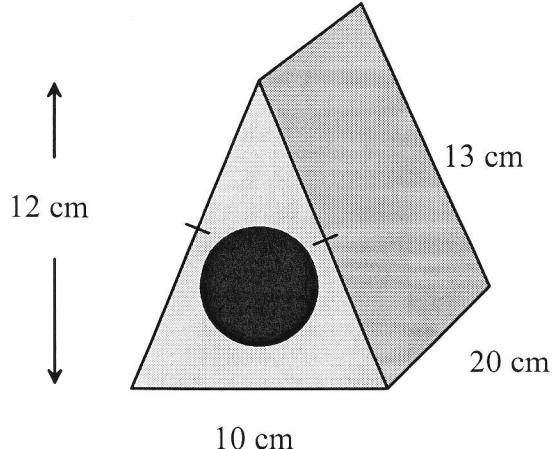
What area of plywood is needed to make the ramp?



Area of plywood = 84 m^2

6. A bird house is made in the shape of a triangular prism. The triangle is isosceles. One end has a hole cut out of it which has an area of 40 cm^2 . The outside of the bird house is to be painted. What is the area to be painted?

800 cm^2
 580 cm^2
 840 cm^2
 640 cm^2



7. A cube has a volume of 216 000 mm^3 . What is its volume in cm^3 ?

216 cm^3

2 160 cm^3

60 cm^3

2.16 cm^3

8. One cubic centimetre holds one millilitre of water. How many litres of water would be held by a container which has a volume of 4 500 cm^3 ?

45 litres

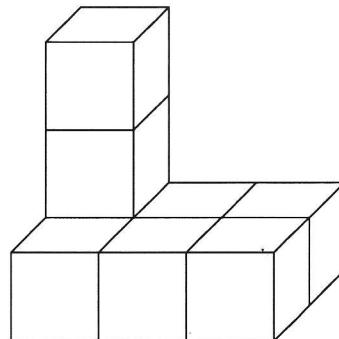
450 litres

4 500 litres

4.5 litres

9. The solid below is made up of identical small cubes. The volume of the entire solid is 56 cm^3 . What is the volume of one of the small cubes?

Volume of one cube = cm^3



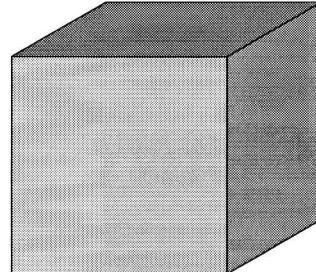
10. What is the volume of the cube shown below?

900 cm^3

27 000 cm^3

54 000 cm^3

45 000 cm^3



30 cm

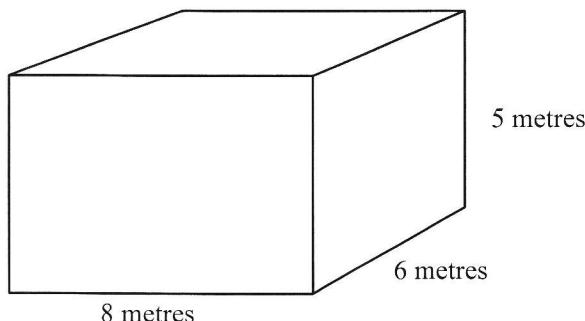
11. What is the volume of the prism shown?

216 m^3

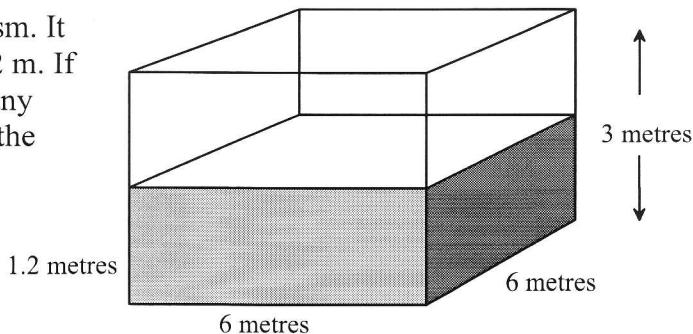
108 m^3

480 m^3

240 m^3



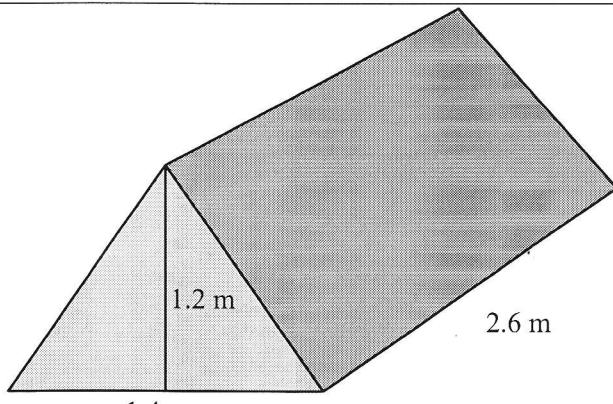
12. The tank shown is a square prism. It contains water to a depth of 1.2 m. If 1 m^3 holds 1000 litres, how many kilolitres does the tank hold at the moment?



The tank holds **43.2** kilolitres.

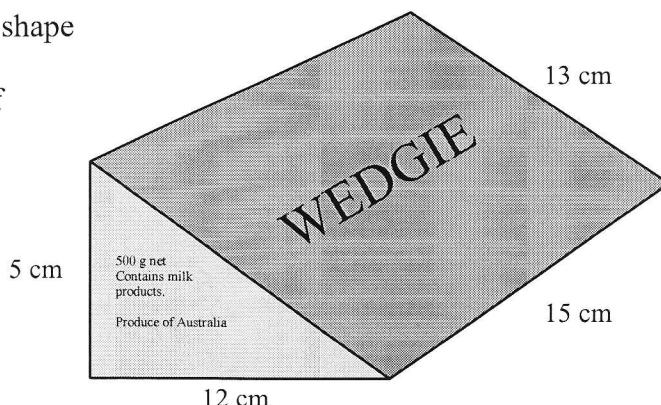
13. A two man tent has the measurements shown on the diagram. What is the volume of the tent in cubic metres?
(correct to one decimal place)

- 4.4 m^3
- 1.7 m^3
- 3.4 m^3
- 2.2 m^3

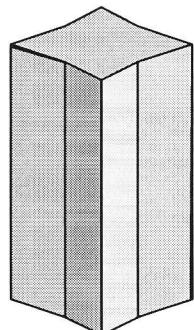


14. Wedgie cheese is packed in the shape of the triangular prism shown. What is the volume of a pack of Wedgie cheese?

- 450 cm^3
- 900 cm^3
- 510 cm^3
- 487.5 cm^3



- 15.



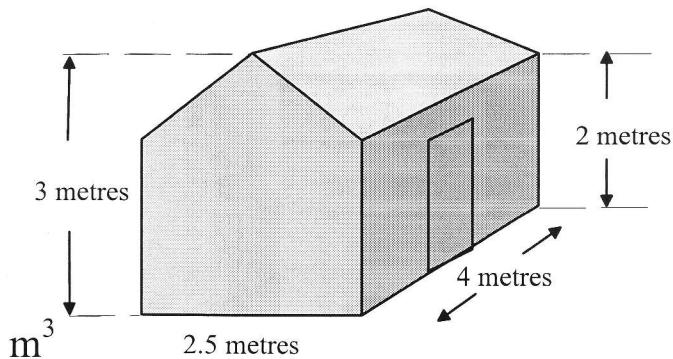
A plinth used to support a statue is a prism with its cross section the shape of a star. The area of the star is 700 cm^2 . The plinth is 45 cm tall and is made of marble. What volume of marble is needed for the plinth?

The volume of marble is **31500** cm^3 .

16. A garden shed has the measurements shown in the diagram.

What is the volume of the garden shed?

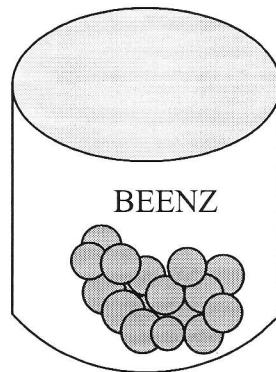
The volume is



m^3

17. A can of baked beans is a cylinder with diameter 8 cm and depth 12 cm.

What is the volume of the can to the nearest 100cm^3 ?



- 300 cm^3
- 600 cm^3
- 2 400 cm^3
- 900 cm^3

18. A large can of baked beans is to hold $3\ 000\text{ cm}^3$.

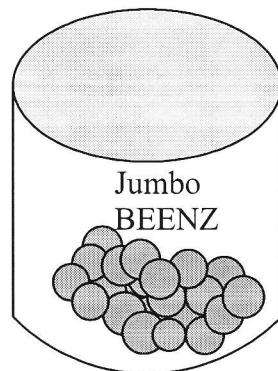
The can has a diameter of 16cm.

What is the depth of this can to the nearest mm?

The depth is

cm.

15

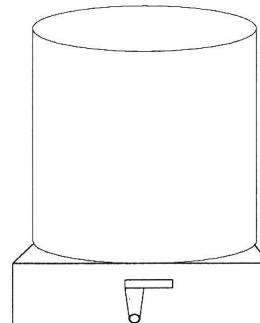


19. The reservoir on a water cooler is cylindrical with a radius of 36 cm and a depth of 60 cm.

1000 cm^3 holds one litre of water.

How many litres does the reservoir hold?

It holds



20. A lunchbox is a prism with its cross section shown below.

What is the volume of the lunch box?

- 4850 cm^3
- 11880 cm^3
- 5850 cm^3
- 19920 cm^3

