

High School Mathematics Test 2014

Year
7

Perimeter

Non Calculator
Section

Skills and Knowledge Assessed:

- Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites (ACMMG196)
- Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197)

Name _____

Answer all questions in the spaces provided on this test paper by:

Writing the answer in the box provided.

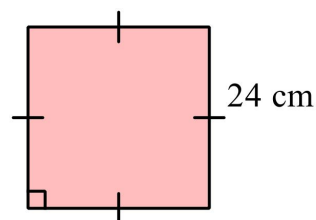
or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper. Calculators are **not** allowed.

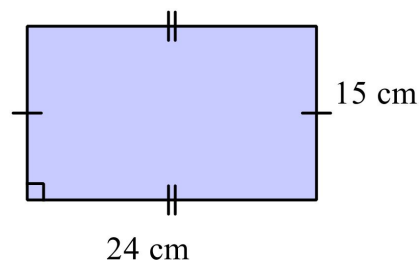
1. What is the perimeter of the square shown?

Perimeter = cm.



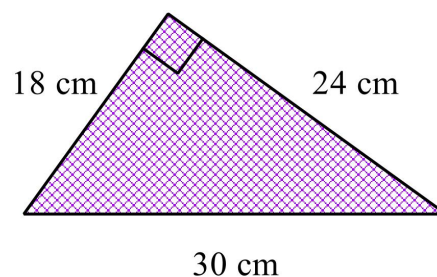
2. Find the perimeter of this rectangle.

- ☐ 39 cm
☐ 54 cm
☐ 63 cm
☐ 78 cm



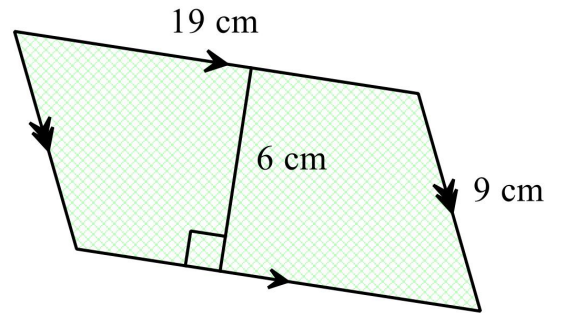
3. What is the perimeter of the triangle?

Perimeter = cm.



4.

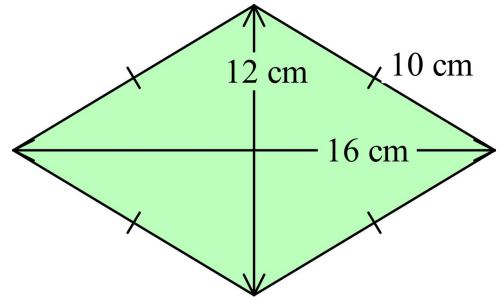
What is the perimeter of the parallelogram shown?

Perimeter = cm.

5.

What is the perimeter of the rhombus?

- ☐ 40 cm
☐ 56 cm
☐ 96 cm
☐ 112 cm

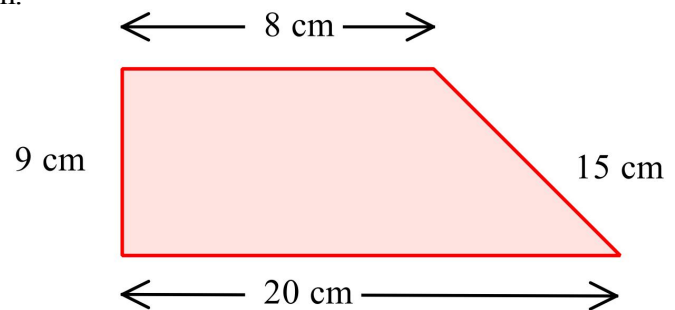


6.

A trapezium has the dimensions shown.

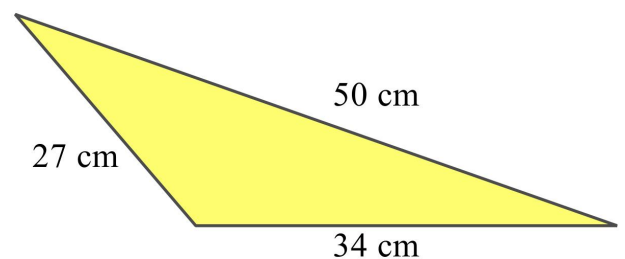
What is its perimeter?

- ☐ 43 cm
☐ 52 cm
☐ 126 cm
☐ 252 cm



7.

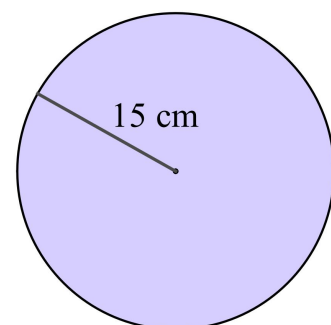
What is the perimeter of the triangle?

Perimeter = cm.

8.

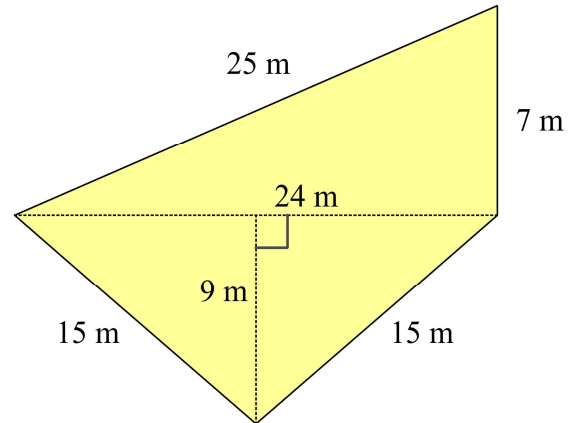
Find the perimeter of this circle in terms of π .

- ☐ 15π cm
☐ 30π cm
☐ 225π cm
☐ 450π cm



9. What is the perimeter of the quadrilateral?

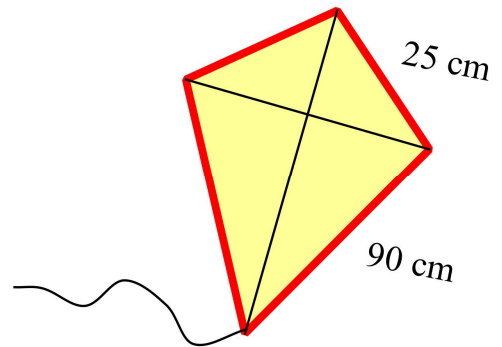
- ☐ 55 m
☐ 62 m
☐ 88 m
☐ 192 m



10. Aaron builds a kite with the dimensions shown. He applies tape around the edge to strengthen it.

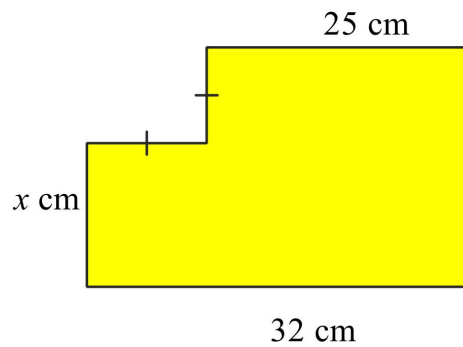
What length of tape is needed?

Length of tape = cm.

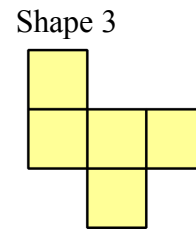
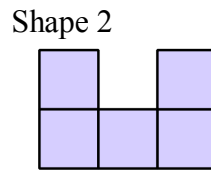
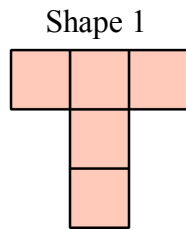


11. The perimeter of this shape is 120 cm. What is the value of x ?

$x =$ cm



12. The three shapes below are each made using five 1 cm square tiles. Which statement below is true?



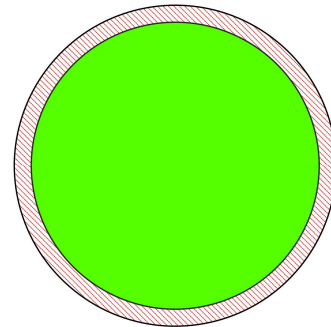
- ☐ All three shapes have the same perimeter.
- ☐ Shape 1 and Shape 2 have the same perimeter.
- ☐ Shape 1 and Shape 3 have the same perimeter.
- ☐ Shape 2 and Shape 3 have the same perimeter.

13. A circular cricket ground has a diameter 120 m.

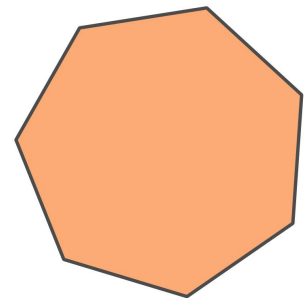
Elise runs 4 laps of the ground to warm up before a game.

How far does she run (in terms of π)?

- ☐ 60π m ☐ 120π m
- ☐ 240π m ☐ 480π m

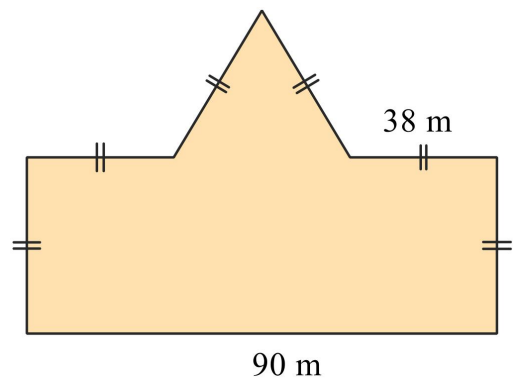


14. A regular polygon shown has a perimeter of 112 m. How long is each side?



15. What is the perimeter of the shape shown? (Nearest metre)

Perimeter = m



High School Mathematics Test 2014

Year
7

Perimeter

Calculator Allowed
Short Answer
Section

Name _____

Answer all questions in the spaces provided on this test paper by:

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or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper. Calculators are allowed.

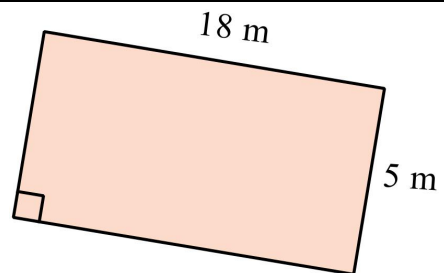
1. A square field has a perimeter of 2 304 m.

What is the length of the sides of the field?

- ☐ 48 m
☐ 96 m
☐ 288 m
☐ 576 m

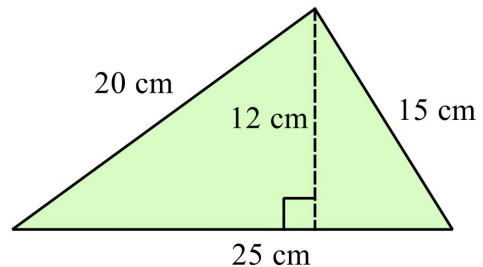
2. What is the perimeter of this rectangle?

Perimeter = m.



3. Find the perimeter of this triangle.

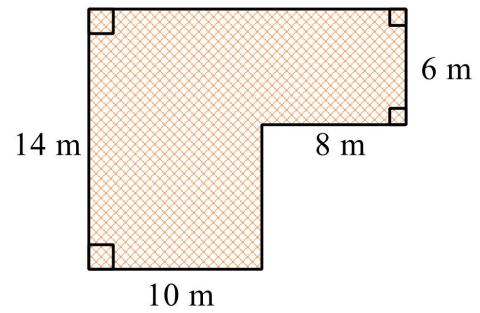
- ☐ 45 cm
☐ 60 cm
☐ 72 cm
☐ 150 cm



4.

What is the perimeter of this shape?

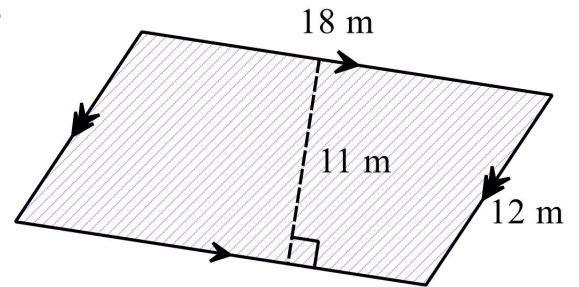
- ☐ 32 m
- ☐ 38 m
- ☐ 64 m
- ☐ 188 m



5.

What is the perimeter of the parallelogram shown?

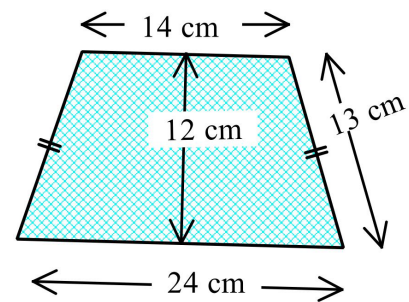
- ☐ 30 m
- ☐ 41 m
- ☐ 60 m
- ☐ 198 m



6.

What is the perimeter of the trapezium?

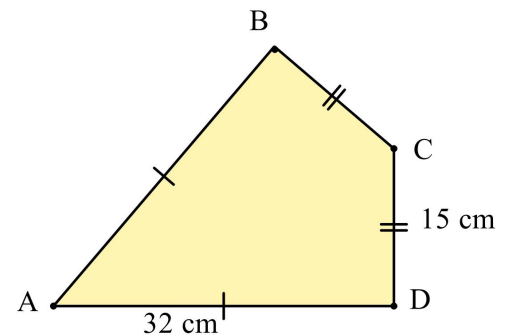
Perimeter = cm.



7.

What is the perimeter of the kite ABCD?

Perimeter = cm.

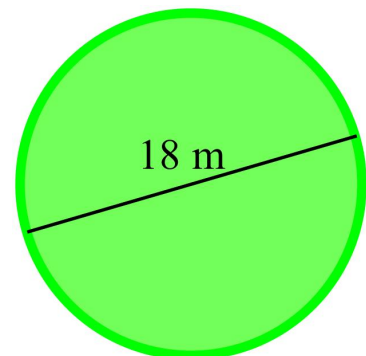


8.

The circular lawn has a diameter of 18 m.

What is its circumference?

- ☐ 56.5 m
- ☐ 177.7 m
- ☐ 201.1 m
- ☐ 254.5 m



9.

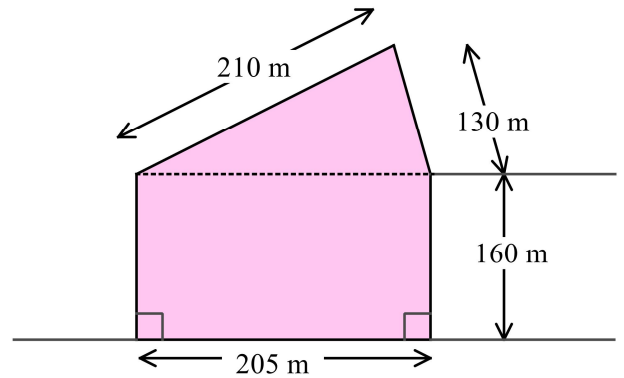
A circle has a circumference of 18 m.
What is its radius, correct to the nearest millimetre?

Radius = cm

10.

Find the perimeter of the shaded plot of land.

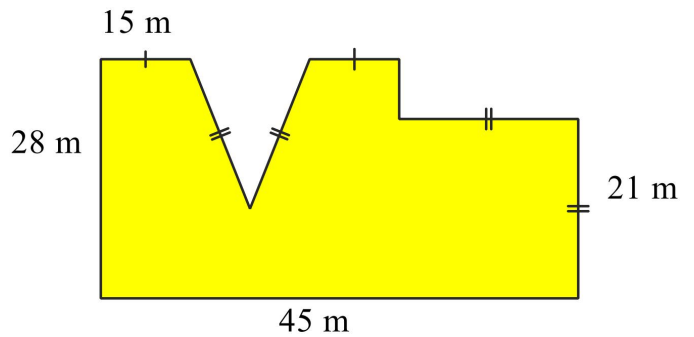
Perimeter = m



11.

What is the perimeter of the irregular polygon shown?

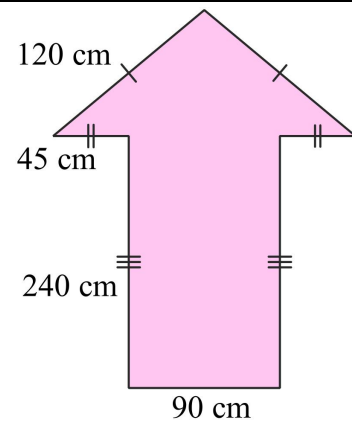
- ☐ 173 m ☐ 179 m
☐ 187 m ☐ 194 m



12.

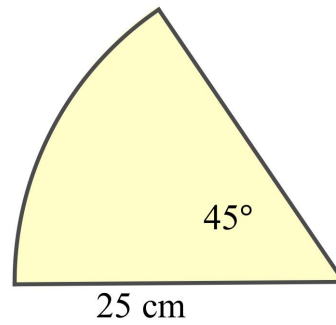
A sign is made in the shape of an arrow as shown.
What is the perimeter of the sign?

- ☐ 690 cm ☐ 780 cm
☐ 810 cm ☐ 900 cm



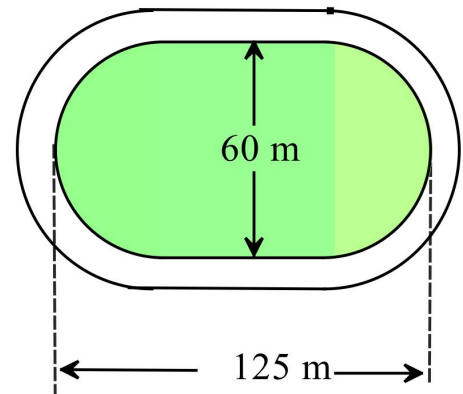
13. A sector of a circle is shown. What is its perimeter, correct to one decimal place?

Perimeter = cm.



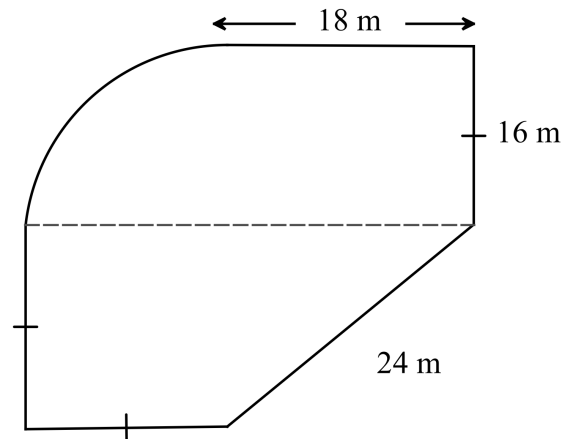
14. A trotting track has the dimensions shown. The width of the track is 12 m. How much further is travelled in making one lap of the track on the outside rail compared to the inside rail? Answer to the nearest m.

Extra distance = m.



15. Find the perimeter of the shape shown below. (Nearest metre)

Perimeter = m.



High School Mathematics Test 2014

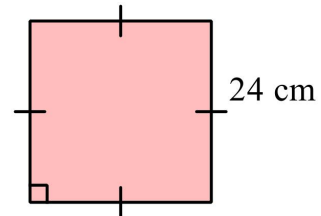
Perimeter ANSWERS

Non Calculator Section (1 mark each)

1. What is the perimeter of the square shown?

$$P = 24 \times 4 = 96$$

Perimeter = cm.



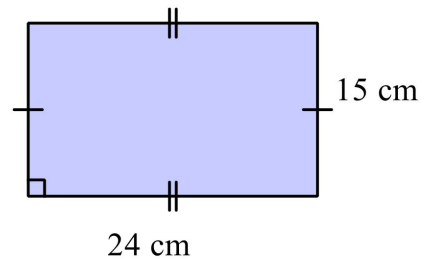
2. Find the perimeter of this rectangle.

☐ 39 cm

☐ 54 cm $P = 2 \times (15 + 24) = 78$

☐ 63 cm

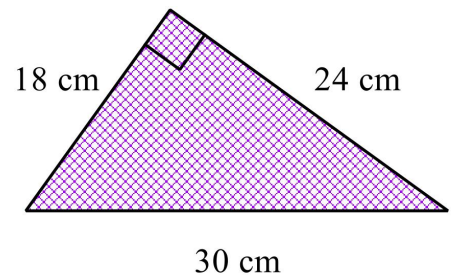
☒ 78 cm



3. What is the perimeter of the triangle?

$$P = 18 + 24 + 30 = 72$$

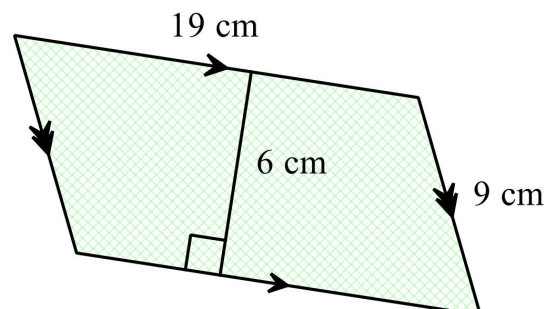
Perimeter = cm.



4. What is the perimeter of the parallelogram shown?

$$P = 2 \times (19 + 9) = 56$$

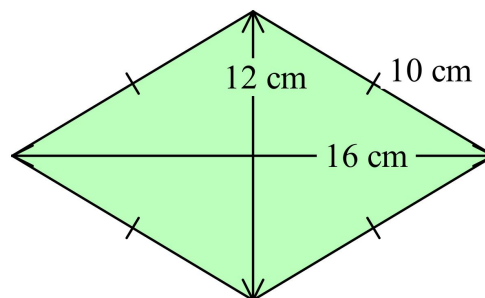
Perimeter = cm.



5.

What is the perimeter or the rhombus?

- ☒ 40 cm
☐ 56 cm $P = 4 \times 10 = 40$
☐ 96 cm
☐ 112 cm

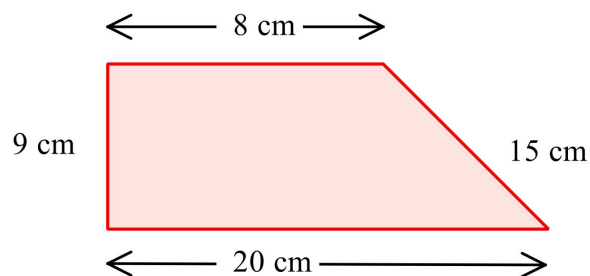


6.

A trapezium has the dimensions shown.

What is its perimeter?

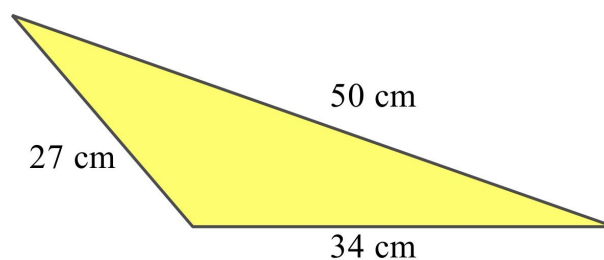
- ☐ 43 cm
☒ 52 cm $P = 20 + 9 + 8 + 15 = 52$
☐ 126 cm
☐ 252 cm



7.

What is the perimeter of the triangle?

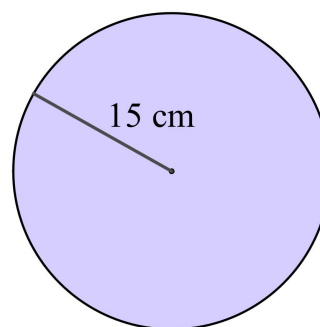
$$P = 50 + 27 + 34 = 111$$

Perimeter = 111 cm.

8.

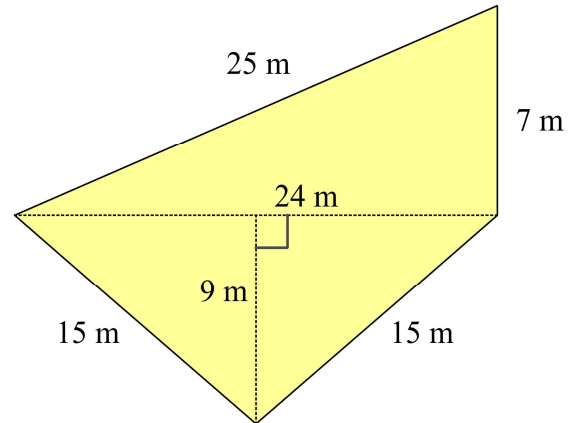
Find the perimeter of this circle in terms of π .

- ☐ 15π cm
☒ 30π cm $C = \pi d = \pi \times 30 = 30\pi$
☐ 225π cm
☐ 450π cm



9. What is the perimeter of the quadrilateral?

- ☐ 55 m
☒ 62 m $P = 25 + 15 + 15 + 7 = 62$
☐ 88 m
☐ 192 m

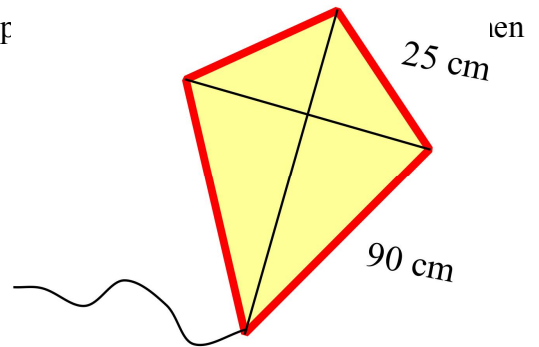


10. Aaron builds a kite with the dimensions shown. He ap
it.

What length of tape is needed?

$$L = 2 \times 25 + 2 \times 90 = 50 + 180 = 230$$

Length of tape = 230 cm.



11. The perimeter of this shape is 120 m.
What is the value of x ?

Let the equal intervals be y .

$$25 + y = 32$$

$$y = 7$$

$$32 \times 2 + 2 \times (x + 7) = 120$$

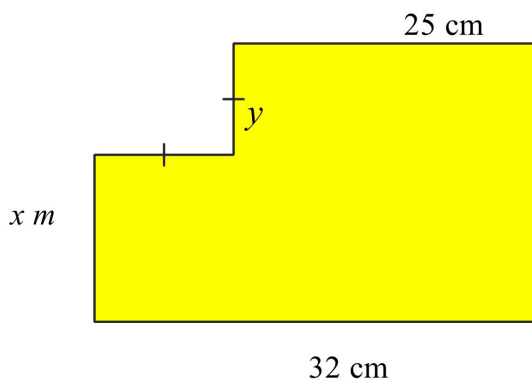
$$64 + 2x + 14 = 120$$

$$2x + 78 = 120$$

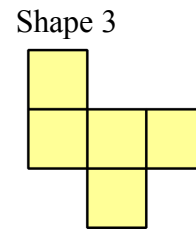
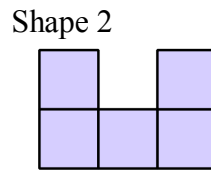
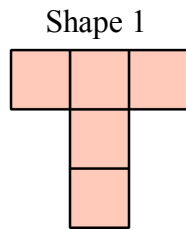
$$2x = 42$$

$$x = 21$$

$x =$ 21 cm



12. The three shapes below are each made using five 1 cm square tiles. Which statement below is true?



- ☒ All three shapes have the same perimeter.
- ☐ Shape 1 and Shape 2 have the same perimeter.
- ☐ Shape 1 and Shape 3 have the same perimeter.
- ☐ Shape 2 and Shape 3 have the same perimeter.

13. A circular cricket ground has a diameter 120 m.

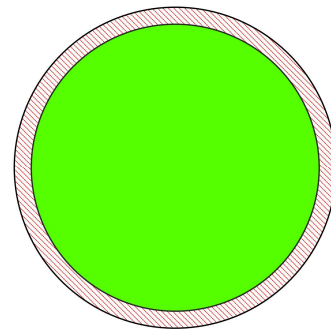
$$C = 120\pi$$

$$\text{Dist} = 4 \times 120\pi = 480\pi$$

Elise runs 4 laps of the ground to warm up before a game.

How far does she run (in terms of π)?

- ☐ 60π m ☐ 120π m
- ☐ 240π m ☒ 480π m

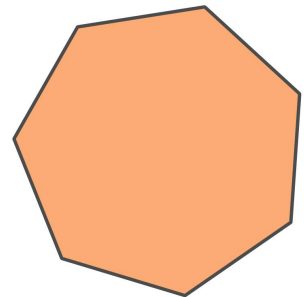


14. A regular polygon shown has a perimeter of 112 m. How long is each side?

Seven sides

$$\text{Side length} = 112 \div 7 = 16$$

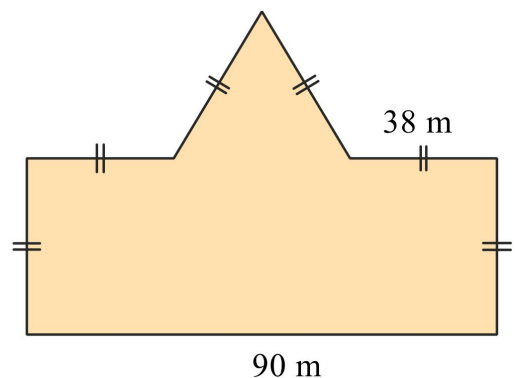
16 m



15. What is the perimeter of the shape shown?

$$\begin{aligned} P &= 90 + 6 \times 38 \\ &= 90 + 228 \\ &= 318 \end{aligned}$$

Perimeter = 318 m



High School Mathematics Test 2014

Calculator Allowed Short Answer Section (1 mark each)

1. A square field has a perimeter of 2 304 m.

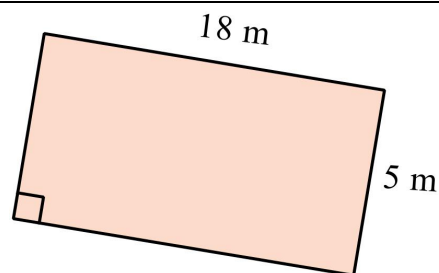
What is the length of the sides of the field?

- ☐ 48 m
☐ 96 m $S = \frac{2304}{4} = 576$
☐ 288 m
☒ 576 m

2. What is the perimeter of this rectangle?

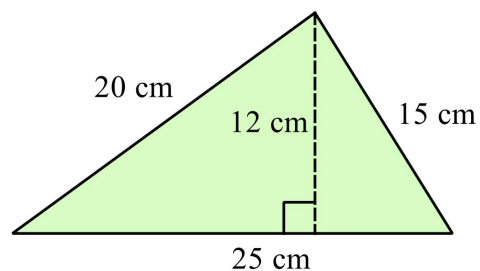
$$P = 2 \times (18 + 5) = 2 \times 23 = 46$$

Perimeter = 46 m.



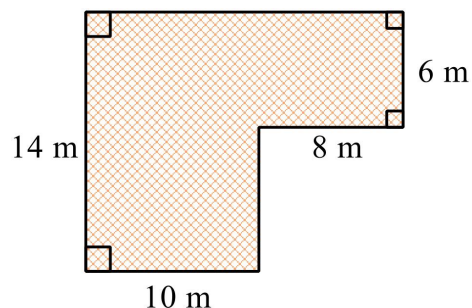
3. Find the perimeter of this triangle.

- ☐ 45 cm
☒ 60 cm $P = 20 + 15 + 25 = 60$
☐ 72 cm
☐ 150 cm



4. What is the perimeter of this shape?

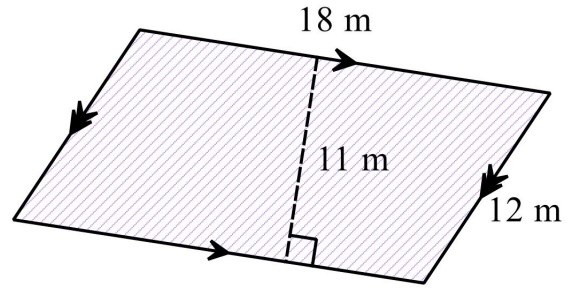
- ☐ 32 m
☐ 38 m $P = 14 \times 2 + 18 \times 2 = 64$
☒ 64 m
☐ 188 m



5.

What is the perimeter of the parallelogram shown?

- ☐ 30 m
☐ 41 m $P = 2 \times (18 + 12) = 60$
☒ 60 m
☐ 198 m

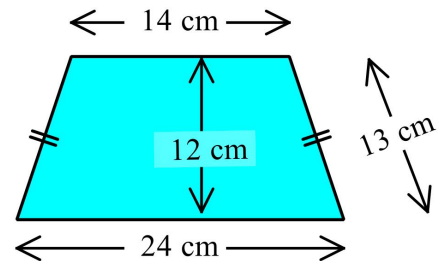


6.

What is the perimeter of the trapezium?

$$P = 24 + 14 + 2 \times 13 = 64$$

Perimeter = 64 cm.

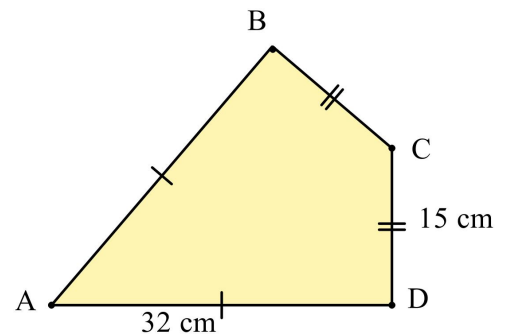


7.

What is the perimeter of the kite ABCD?

$$P = 2 \times (15 + 32) = 94$$

Perimeter = 94 cm.

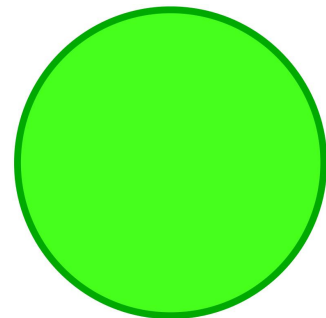


8.

The circular lawn has a diameter of 18 m.

What is its circumference?

- ☒ 56.5 m
☐ 177.7 m $C = \pi d = \pi \times 18 = 56.5486 \dots$
☐ 201.1 m
☐ 254.5 m



9.

A circle has a circumference of 18 m.
What is its radius, correct to the nearest millimetre?

$$C = \pi d$$

$$18 = \pi d$$

$$d = \frac{18}{\pi} = 5.729$$

$$r = 5.729 \div 2 = 2.864\dots$$

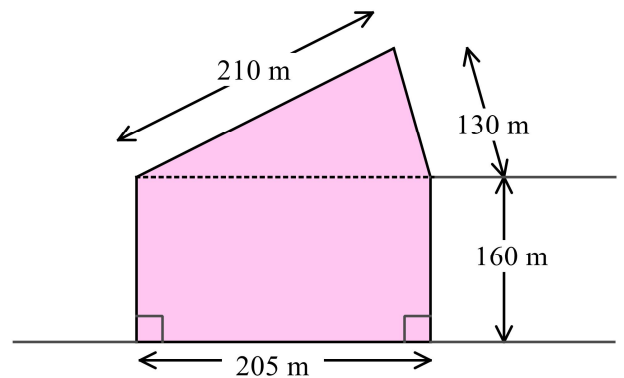
Radius = 2.9 cm

10.

Find the perimeter of the shaded plot of land.

$$P = 205 + 160 \times 2 + 130 + 210 = 865$$

Perimeter = 865 m



11.

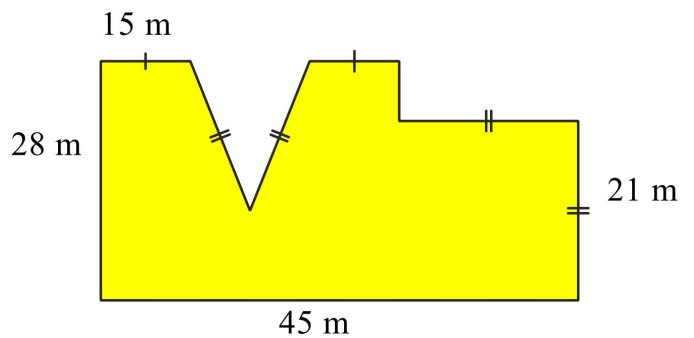
What is the perimeter of the irregular polygon shown?

$$P = 45 + 28 \times 2 + 15 \times 2 + 21 \times 3 = 194$$

☐ 173 m

☐ 179 m

☐ 187 m

☒ 194 m


12.

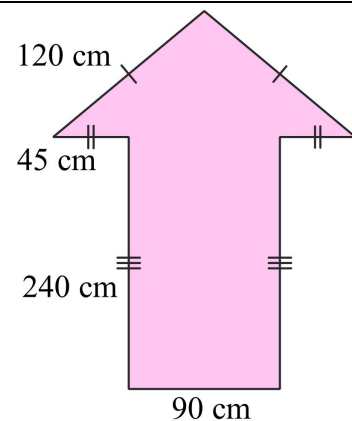
A sign is made in the shape of an arrow as shown.
What is the perimeter of the sign?

$$P = 90 + 240 \times 2 + 45 \times 2 + 120 \times 2 = 900$$

☐ 690 cm

☐ 780 cm

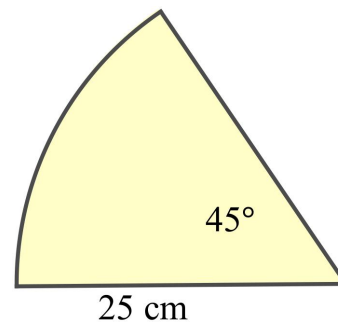
☐ 810 cm

☒ 900 cm


13. A sector of a circle is shown. What is its perimeter, correct to one decimal place?

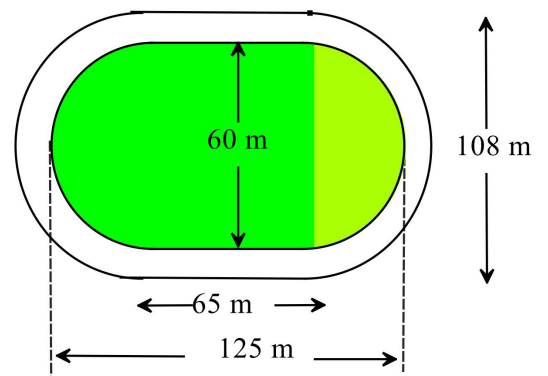
Perimeter = 69.6 cm.

$$\begin{aligned}
 P &= \frac{\pi d}{8} + 2 \times 25 \\
 &= \frac{\pi \times 50}{8} + 2 \times 25 \\
 &= 69.6349\dots
 \end{aligned}$$



14. A trotting track has the dimensions shown. The width of the track is 12 m. How much further is travelled in making one lap of the track on the outside rail compared to the inside rail? Answer to the nearest m.

$$\begin{aligned}
 \text{Inside perimeter} &= \pi \times 60 + 65 \times 2 = 318.4955\dots \\
 \text{Outside perimeter} &= \pi \times 84 + 65 \times 2 = 393.93\dots \\
 \text{Difference} &= 393.93 - 318.50 = 75.43 \\
 &= 75 \text{ m (nearest m)}
 \end{aligned}$$



Extra distance = 75 m.

15. Find the perimeter of the shape shown below.

$$\begin{aligned}
 P &= \frac{\pi \times 32}{4} + 16 \times 3 + 24 + 18 \\
 &= 115.132\dots
 \end{aligned}$$

Perimeter = 115 m.

