

1 kL = 1000 L

2⁸ ÷ 2⁴

2⁸ ÷ 2⁴

2⁸ ÷ 2⁴

(4³)⁵

(4³)⁵

(4³)⁵

1 kL = 1000 L

1 kL = 1000 L

1 kL = 1000 L

MATHEMATICS

Stage 4

Measurement and Space, Length

Rectilinear Figures

Teacher: Chi Binh Le

Exam Equivalent Time: 126 minutes (based on allocation ~1.25 min/mark)

norWEST

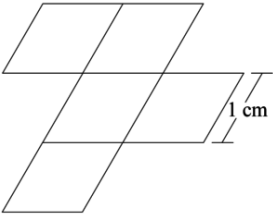
CHRISTIAN COLLEGE

STRENGTH OF PURPOSE

Questions

1. **D** Rectilinear Figures (253329) **Core**

A shape, pictured below, is made with 5 rhombuses.

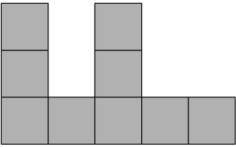


What is the perimeter of the shape?

- A. 10 cm
- B. 14 cm
- C. 12 cm
- D. 20 cm

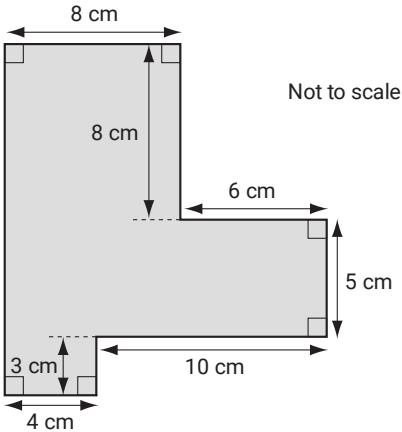
2. **D** Rectilinear Figures (253227) **Core**

What is the perimeter of the shape below given each square has a side length of 1 cm?



- A. 8 cm
- B. 18 cm
- C. 20 cm
- D. 36 cm

3. **C** Rectilinear Figures (253332) **Core**

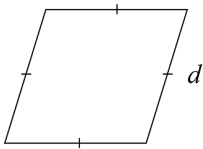


What is the perimeter of this shape?

- A. 44 cm
- B. 47 cm
- C. 60 cm
- D. 146 cm

4. **c** Rectilinear Figures (253479) **Core**

The rhombus below has a side length d .

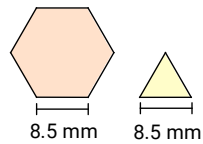


Which expression **cannot** be used for the perimeter?

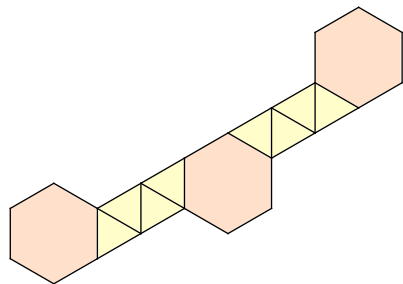
- A. $2 \times (d + d)$
- B. $d \times 4$
- C. $d \times d$
- D. $d + d + 2d$

5. **c** Rectilinear Figures (253491) **Core**

A hexagon with equal sides and an equilateral triangle are drawn below.



3 identical hexagons and 8 identical equilateral triangles are connected as shown in the diagram below.

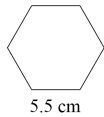


What is the perimeter of the larger shape?

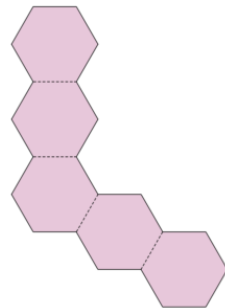
- A. 76.5 mm
- B. 93.5 mm
- C. 153 mm
- D. 187 mm

6. **c** Rectilinear Figures (253334) **Core**

A regular hexagon is drawn below.



5 identical hexagons are connected as shown in the diagram below.

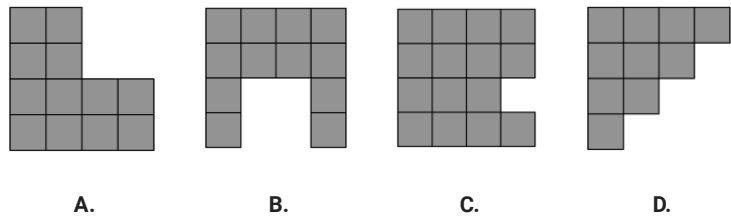


What is the perimeter of the larger shape?

- A. 110 cm
- B. 121 cm
- C. 132 cm
- D. 165 cm

7. **c** Rectilinear Figures (253237) **Core**

Which one of these shapes has the largest perimeter?



8. **C** Rectilinear Figures (253241) **Core**

The table shows the dimensions of four different rectangles in centimetres.

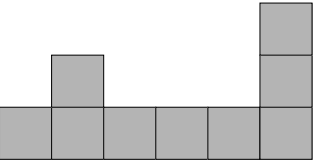
Rectangle	Length (cm)	Width (cm)
1	9	5
2	10	8
3	14	2
4	18	10

Which rectangle has a perimeter of 28 centimetres?

- A. Rectangle 1
- B. Rectangle 2
- C. Rectangle 3
- D. Rectangle 4

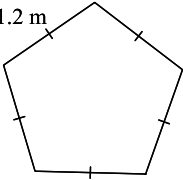
9. **D** Rectilinear Figures (253468) **Core**

What is the perimeter of the shape below given each square has a side length of 2 cm? (2 marks)



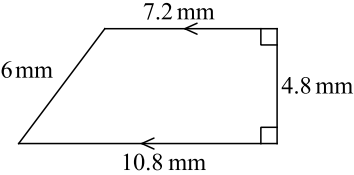
10. **C** Rectilinear Figures (253549) **Core**

Calculate the perimeter of the following polygon. (2 marks)



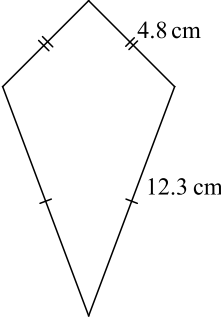
11. **C** Rectilinear Figures (253546) **Core**

Calculate the perimeter of the following trapezium. (2 marks)



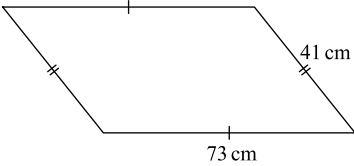
12. **C** Rectilinear Figures (253541) **Core**

Calculate the perimeter of the following kite. (2 marks)



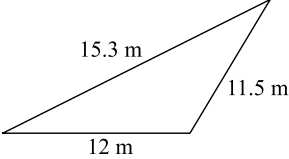
13. **C** Rectilinear Figures (253538) **Core**

Calculate the perimeter of the following parallelogram. (2 marks)



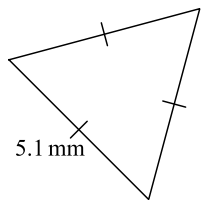
14. **C** Rectilinear Figures (253535) **Core**

Calculate the perimeter of the following triangle. (2 marks)



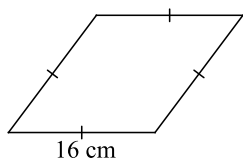
15. **c** Rectilinear Figures (253532) **Core**

Calculate the perimeter of the following triangle. (2 marks)



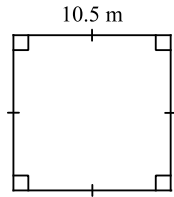
16. **c** Rectilinear Figures (253525) **Core**

Calculate the perimeter of the following rhombus. (2 marks)



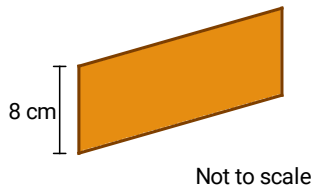
17. **c** Rectilinear Figures (253522) **Core**

Calculate the perimeter of the following square. (2 marks)



18. **c** Rectilinear Figures (253472) **Core**

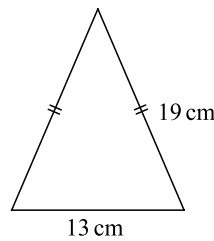
Fumiko is laying pavers that are shaped like a parallelogram.



The longer sides are 3.5 times the length of the shorter sides.
What is the perimeter of one of the pavers? (2 marks)

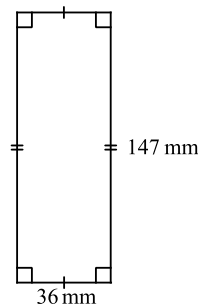
19. **c** Rectilinear Figures (253528) **Core**

Calculate the perimeter of the following triangle. (2 marks)



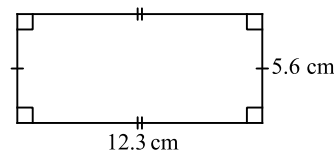
20. **c** Rectilinear Figures (253519) **Core**

Calculate the perimeter of the following rectangle. (2 marks)



21. **c** Rectilinear Figures (253516) **Core**

Calculate the perimeter of the following rectangle. (2 marks)



22. **c** Rectilinear Figures (253475) **Core**

Tatiana is cutting a piece of material in the shape of a parallelogram for a sewing project.



The longer sides are one and two-thirds times the length of the shorter sides.
What is the perimeter of the piece of material? (2 marks)

23. **c** Rectilinear Figures (253455) **Core**

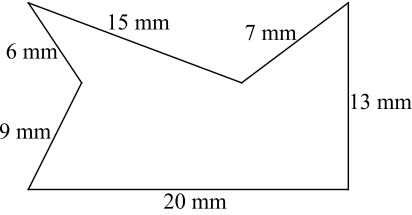
A rectangular parking lot has a perimeter of 80 metres.
Each short side has a length of 10 metres.
What is the length of the long side? *(2 marks)*

24. **c** Rectilinear Figures (253496) **Core**

A rectangle has a length of 12 cm and a width of 7 cm.
A square has the same perimeter as this rectangle.
What is the side length of this square in centimetres? *(2 marks)*

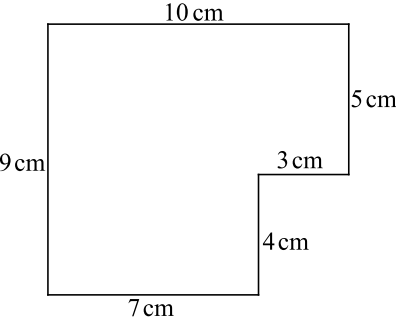
25. **c** Rectilinear Figures (253625) **Core**

Find the perimeter of the following irregular shape. *(2 marks)*



26. **c** Rectilinear Figures (253613) **Core**

Find the perimeter of the following irregular shape. *(2 marks)*

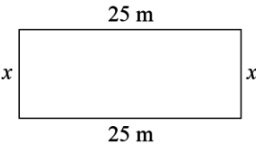


27. **c** Rectilinear Figures (253339) **Core**

A rectangle has a length of 25 cm and a width of 20 cm.
A square has the same perimeter as this rectangle.
What is the side length of this square in centimetres? *(2 marks)*

28. **c** Rectilinear Figures (253325) **Core**

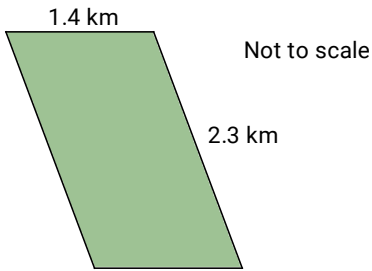
A rectangular car park is shown below with a perimeter of 70 m.



What is the length of the short side x ? *(2 marks)*

29. **c** Rectilinear Figures (253486) **Core**

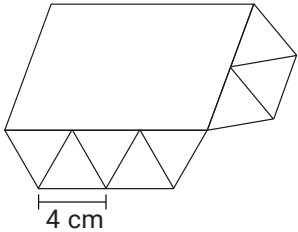
Joyce is walking her dog around a paddock in the shape of a parallelogram.



If she walks the dog around the paddock in the morning and the afternoon, how many kilometres do they walk each day? *(2 marks)*

30. **c** Rectilinear Figures (253348) **Core**

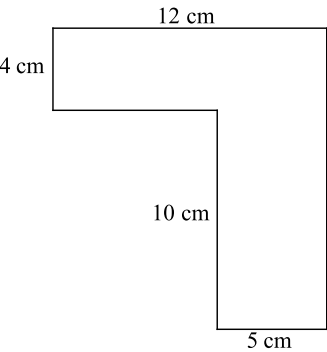
This shape is made from eight equilateral triangles and one large parallelogram.



Each side of all the small triangles is 4 cm long.
What is the perimeter of the shape? *(2 marks)*

31. **C** Rectilinear Figures (253554) **Core**

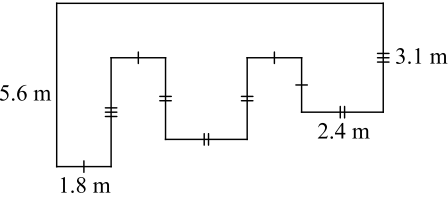
a. Mark all missing lengths on the following shape. (1 mark)



b. Calculate the perimeter. (2 marks)

32. **B** Rectilinear Figures (253592) **Core**

Find the perimeter of the following irregular shape. (2 marks)



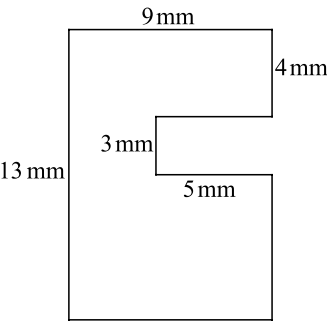
33. **B** Rectilinear Figures (253634) **Core**

An isosceles triangle has a base of length 4 centimetres and a perimeter of 20 centimetres.

Find the length of the equal sides. (2 marks)

34. **B** Rectilinear Figures (253562) **Core**

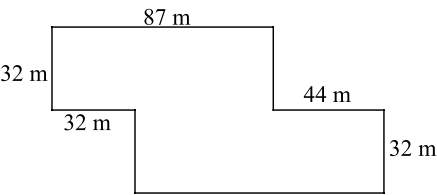
a. Mark all missing lengths on the following shape. (1 mark)



b. Calculate the perimeter. (2 marks)

35. **B** Rectilinear Figures (253579) **Core**

a. Mark all missing lengths on the following shape. (1 mark)

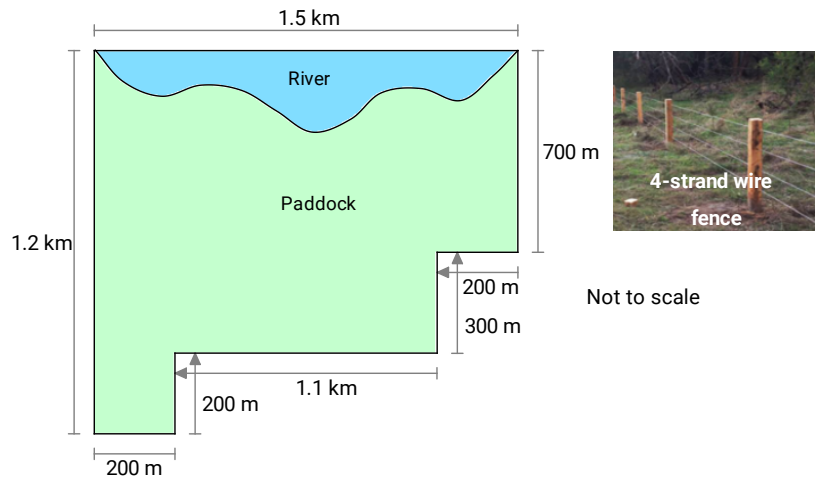


b. Calculate the perimeter. (2 marks)

36. **B** Rectilinear Figures (253512) **Core**

A farmer uses the river bordering his property and fencing to create a large grazing paddock for his horses, as shown in the diagram below.

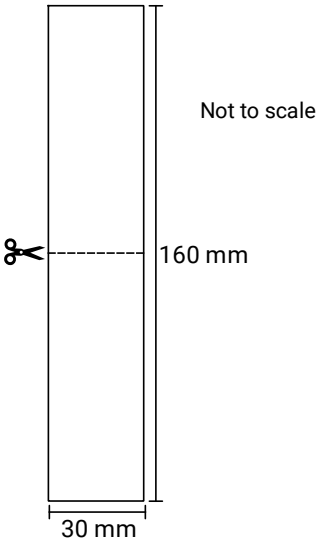
The fencing has 4-strand wiring which is also shown below.



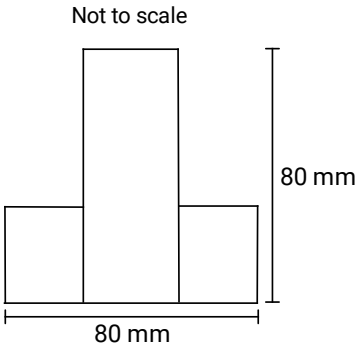
Given that fencing is not required on the river boundary, how many kilometres of wire will be required to fence the rest of the paddock? *(2 marks)*

37. **B** Rectilinear Figures (253499) **Core**

Martha cut a piece of material in half as shown below.



She then placed the one half on top of the other half, as shown below.

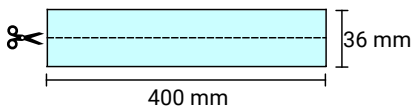


What is the perimeter of the newly formed shape in millimetres? *(2 marks)*

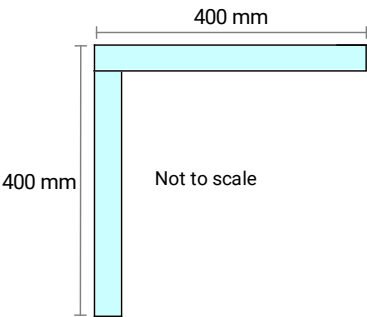
38. **B+** Rectilinear Figures (253509) **Core**

Jill cut a piece of binding in half.

Not to scale



She then placed one half on top of the other half, as shown below.



What is the perimeter of the newly formed shape in millimetres? (2 marks)

39. **B+** Rectilinear Figures (253319) **Core**

Justin connects three of his restaurant tables together to make one long table.

The view from above the tables is shown below.

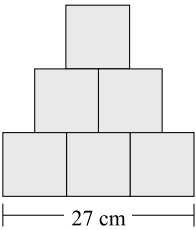


Each table is 70 cm long and 50 cm wide.

What is the perimeter of the long table? (2 marks)

40. **B+** Rectilinear Figures (253356) **Core**

Penelope made a shape using 6 identical squares.

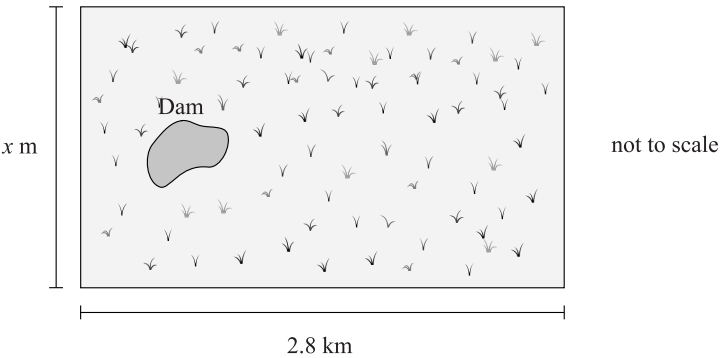


What is the perimeter of the shape? (2 marks)

41. **B+** Rectilinear Figures (253360) **Core**

Aragorn is fencing a paddock on his property. The total length of fencing he requires is 8.2 kilometres.

The length of the paddock is 2.8 kilometres.

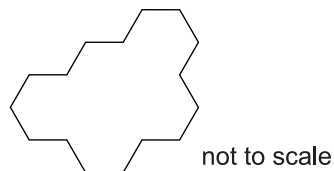


How wide is the paddock?

Write your answer, in kilometres to one decimal place? (2 marks)

42. **B+** Rectilinear Figures (253432) **Core**

Ronald places 5 identical hexagonal tiles side-by-side to make the pattern pictured below.



Each tile has a perimeter of 24 cm and is in the shape of a regular hexagon.

What is the perimeter of the large shape, in centimetres? (2 marks)

43. **B+** Rectilinear Figures (253435) **Core**

The length of this rectangle is one and a half times its height.



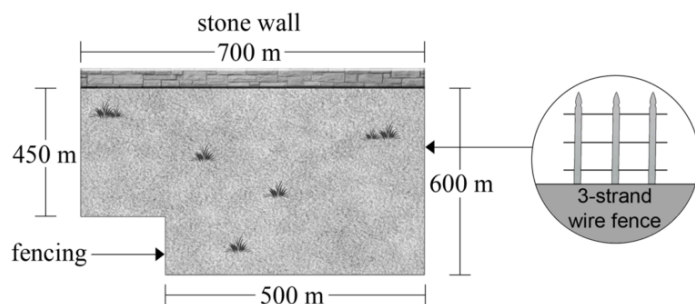
The perimeter of the rectangle is 40 centimetres.

What are the dimensions of the rectangle? (2 marks)

44. **A** Rectilinear Figures (253451) **Core**

A farmer uses an existing stone wall and fencing to create a large grazing paddock for his sheep, as shown in the diagram below.

The fencing has 3-strand wiring which is also shown below.



How many kilometres of wire will be required? (2 marks)

Worked Solutions

1. **D** Rectilinear Figures (253329) **Core**

All sides of a rhombus are equal

$$\begin{aligned}\text{Perimeter} &= 12 \times 1 \\ &= 12 \text{ cm} \\ &\Rightarrow C\end{aligned}$$

2. **D** Rectilinear Figures (253227) **Core**

Starting at the bottom right corner and moving clockwise:

$$\begin{aligned}\text{Perimeter} &= 5 + 3 + 1 + 2 + 1 + 2 + 1 + 2 + 2 + 1 \\ &= 20 \text{ cm} \\ &\Rightarrow C\end{aligned}$$

3. **C** Rectilinear Figures (253332) **Core**

Perimeter (clockwise from top left corner)

$$\begin{aligned}&= 8 + 8 + 6 + 5 + 10 + 3 + 4 + 16 \\ &= 60 \text{ cm} \\ &\Rightarrow C\end{aligned}$$

4. **C** Rectilinear Figures (253479) **Core**

$$\text{Perimeter} = 4 \times d = 4d$$

Options A, B and D = $4d$

$$\text{Option C} = d \times d = d^2 \neq 4d$$

$\Rightarrow C$

5. **C** Rectilinear Figures (253491) **Core**

$$\begin{aligned}\text{Perimeter} &= \text{Number of sides} \times 8.5 \\ &= 22 \times 8.5 \\ &= 187 \text{ mm} \\ &\Rightarrow D\end{aligned}$$

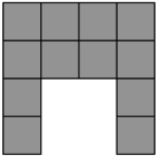
6. **C** Rectilinear Figures (253334) **Core**

$$\begin{aligned}\text{Perimeter} &= \text{Number of sides} \times 5.5 \\ &= 22 \times 5.5 \\ &= 121 \text{ cm} \\ &\Rightarrow B\end{aligned}$$

7. **C** Rectilinear Figures (253237) **Core**

Consider Option B:

$$\begin{aligned}\text{Perimeter} &= 3 \times 4 + 3 \times 2 + 2 \times 1 \\ &= 20 \text{ units}\end{aligned}$$



$\Rightarrow B$

8. **C** Rectilinear Figures (253241) **Core**

Consider rectangle 1

$$\begin{aligned}\text{Perimeter} &= 2 \times \text{length} + 2 \times \text{width} \\ &= (2 \times 9) + (2 \times 5) \\ &= 28 \text{ cm}\end{aligned}$$

$\therefore$ Rectangle 1 has a perimeter of 28 cm.

$\Rightarrow A$

9. **D** Rectilinear Figures (253468) **Core**

Starting from bottom right moving clockwise.

$$\begin{aligned}\text{Perimeter} &= 12 + 2 + 2 + 2 + 2 + 2 + 2 + 6 + 4 + 2 + 6 \\ &= 40 \text{ cm}\end{aligned}$$

10. **C** Rectilinear Figures (253549) **Core**

$$\begin{aligned}\text{Perimeter} &= 5 \times 1.2 \\ &= 6 \text{ m}\end{aligned}$$

11. **C** Rectilinear Figures (253546) **Core**

$$\begin{aligned}\text{Perimeter} &= 6 + 7.2 + 4.8 + 10.8 \\ &= 28.8 \text{ mm}\end{aligned}$$

12. **C** Rectilinear Figures (253541) **Core**

$$\begin{aligned}\text{Perimeter} &= 2 \times 12.3 + 2 \times 4.8 \\ &= 34.2 \text{ cm}\end{aligned}$$

13. **C** Rectilinear Figures (253538) **Core**

$$\begin{aligned}\text{Perimeter} &= 2 \times 73 + 2 \times 41 \\ &= 228 \text{ cm}\end{aligned}$$

14. **C** Rectilinear Figures (253535) **Core**

$$\begin{aligned}\text{Perimeter} &= 15.3 + 12 + 11.5 \\ &= 38.8 \text{ m}\end{aligned}$$

15. **C** Rectilinear Figures (253532) **Core**

$$\begin{aligned}\text{Perimeter} &= 3 \times 5.1 \\ &= 15.3 \text{ mm}\end{aligned}$$

16. **C** Rectilinear Figures (253525) **Core**

$$\begin{aligned}\text{Perimeter} &= 4 \times 16 \\ &= 64 \text{ cm}\end{aligned}$$

17. **C** Rectilinear Figures (253522) **Core**

$$\begin{aligned}\text{Perimeter} &= 4 \times 10.5 \\ &= 42 \text{ m}\end{aligned}$$

18. **C** Rectilinear Figures (253472) **Core**

$$\begin{aligned}\text{Longer side} &= 8 \times 3.5 \\ &= 28 \text{ cm}\end{aligned}$$

$$\begin{aligned}\therefore \text{Perimeter} &= 2 \times 8 + 2 \times 28 \\ &= 72 \text{ cm}\end{aligned}$$

19. **C** Rectilinear Figures (253528) **Core**

$$\begin{aligned}\text{Perimeter} &= 2 \times 19 + 13 \\ &= 51 \text{ cm}\end{aligned}$$

20. **C** Rectilinear Figures (253519) **Core**

Perimeter

$$\begin{aligned} &= 2 \times 36 + 2 \times 147 \\ &= 366 \text{ mm} \end{aligned}$$

21. **C** Rectilinear Figures (253516) **Core**

Perimeter

$$\begin{aligned} &= 2 \times 12.3 + 2 \times 5.6 \\ &= 35.8 \text{ cm} \end{aligned}$$

22. **C** Rectilinear Figures (253475) **Core**

$$\begin{aligned} \text{Longer side} &= \frac{5}{3} \times 18 \\ &= 30 \text{ cm} \end{aligned}$$

$$\begin{aligned} \therefore \text{Perimeter} &= 2 \times 18 + 2 \times 30 \\ &= 96 \text{ cm} \end{aligned}$$

23. **C** Rectilinear Figures (253455) **Core**

Let d = long side of parking lot

$$\begin{aligned} 2 \times d + (2 \times 10) &= 80 \\ 2d &= 80 - 20 \\ 2d &= 60 \\ \therefore d &= 30 \text{ m} \end{aligned}$$

24. **C** Rectilinear Figures (253496) **Core**

Perimeter of Rectangle

$$\begin{aligned} &= 2 \times 12 + 2 \times 7 \\ &= 38 \text{ cm} \end{aligned}$$

Side length of square

$$\begin{aligned} &= \frac{38}{4} \\ &= 9.5 \text{ cm} \end{aligned}$$

25. **C** Rectilinear Figures (253625) **Core**

Perimeter

$$\begin{aligned} &= 7 + 13 + 20 + 9 + 6 + 15 \\ &= 70 \text{ mm} \end{aligned}$$

26. **C** Rectilinear Figures (253613) **Core**

Perimeter

$$\begin{aligned} &= 10 + 5 + 3 + 4 + 7 + 9 \\ &= 38 \text{ cm} \end{aligned}$$

27. **C** Rectilinear Figures (253339) **Core**

$$\begin{aligned} \text{Perimeter of rectangle} &= (2 \times 25) + (2 \times 20) \\ &= 90 \text{ cm} \end{aligned}$$

$$\begin{aligned} \therefore \text{Side length of square} &= \frac{90}{4} \\ &= 22.5 \text{ cm} \end{aligned}$$

28. **C** Rectilinear Figures (253325) **Core**

$$\begin{aligned} \text{Perimeter} &= 25 + 25 + x + x \\ 70 &= 50 + 2x \\ 2x &= 70 - 50 = 20 \\ \therefore x &= 10 \text{ m} \end{aligned}$$

29. **C** Rectilinear Figures (253486) **Core**

Perimeter of paddock

$$\begin{aligned} &= 2 \times 1.4 + 2 \times 2.3 \\ &= 7.4 \text{ km} \end{aligned}$$

Total distance walked each day

$$\begin{aligned} &= 2 \times 7.4 \\ &= 14.8 \text{ km} \end{aligned}$$

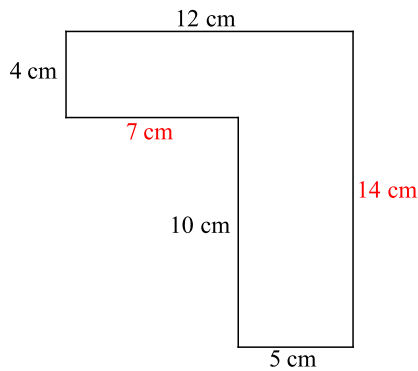
30. **C** Rectilinear Figures (253348) **Core**

Perimeter from the top left corner (clockwise)

$$\begin{aligned} &= 12 + 4 + 4 + 4 + 4 + 8 + 4 + 8 \\ &= 48 \text{ cm} \end{aligned}$$

31. **C** Rectilinear Figures (253554) **Core**

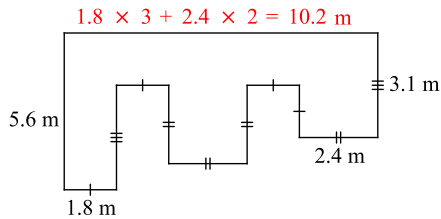
a.



b. Perimeter

$$\begin{aligned} &= 12 + 14 + 5 + 10 + 7 + 4 \\ &= 52 \text{ cm} \end{aligned}$$

32. **B** Rectilinear Figures (253592) **Core**



Perimeter

$$\begin{aligned} &= 10.2 + 2 \times 3.1 + 4 \times 2.4 + 4 \times 1.8 + 5.6 \\ &= 38.8 \text{ m} \end{aligned}$$

33. **B** Rectilinear Figures (253634) **Core**

Let the length of the equal sides be x

$$\text{Then, } 2 \times x + 4 = 20$$

$$2x = 20 - 4$$

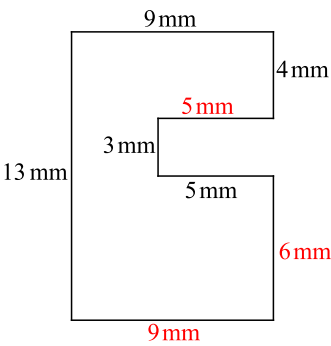
$$2x = 16$$

$$x = 8$$

$\therefore$ The equal sides are of length 8 cm

34. **B** Rectilinear Figures (253562) **Core**

a.

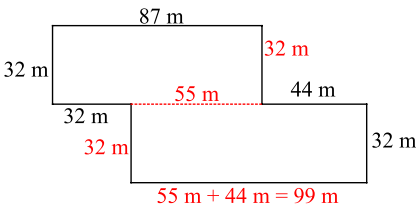


b. Perimeter

$$\begin{aligned} &= 13 + 2 \times 9 + 4 + 2 \times 5 + 3 + 6 \\ &= 54 \text{ mm} \end{aligned}$$

35. **B** Rectilinear Figures (253579) **Core**

a.



b. Perimeter

$$\begin{aligned} &= 87 + 5 \times 32 + 44 + 99 \\ &= 390 \text{ m} \end{aligned}$$

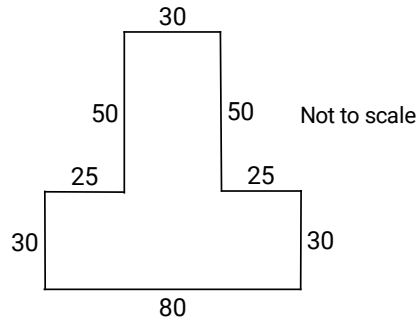
36. **B** Rectilinear Figures (253512) **Core**

Wire needed

$$\begin{aligned} &= 4 \times (700 + 200 + 300 + 1100 + 200 + 200 + 1200) \\ &= 4 \times 3900 \\ &= 15\,600 \text{ m} = 5.6 \text{ km} \end{aligned}$$

37. **B** Rectilinear Figures (253499) **Core**

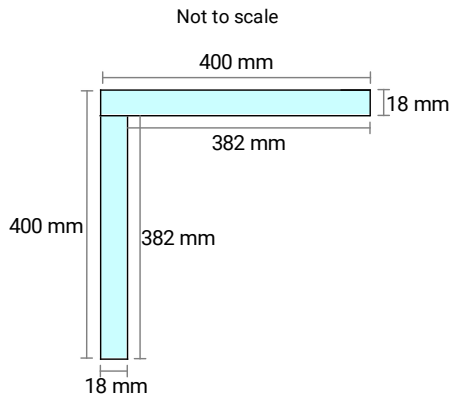
Calculating the perimeter from the top down:



$$\begin{aligned}\text{Perimeter} &= 30 + 2 \times 50 + 2 \times 25 + 2 \times 30 + 80 \\ &= 320 \text{ mm}\end{aligned}$$

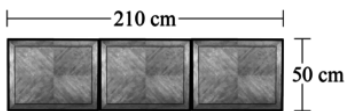
38. **B+** Rectilinear Figures (253509) **Core**

Calculating the perimeter clockwise from top right:



$$\begin{aligned}\text{Perimeter} &= 18 + 2 \times 382 + 18 + 2 \times 400 \\ &= 1600 \text{ mm}\end{aligned}$$

39. **B+** Rectilinear Figures (253319) **Core**



$$\begin{aligned}\text{Perimeter} &= 2 \times (210 + 50) \\ &= 2 \times 260 \\ &= 520 \text{ cm}\end{aligned}$$

40. **B+** Rectilinear Figures (253356) **Core**

$$\begin{aligned}\text{Length of 1 side} &= \frac{27}{3} \\ &= 9 \text{ cm}\end{aligned}$$

$$\begin{aligned}\therefore \text{Perimeter} &= (10 \times 9) + (4 \times 4.5) \\ &= 90 + 18 \\ &= 108 \text{ cm}\end{aligned}$$

41. **B+** Rectilinear Figures (253360) **Core**

Express as a perimeter equation:

$$\begin{aligned}2 \times 2.8 + 2x &= 8.2 \\ 2x &= 8.2 - 5.6 \\ 2x &= 2.6 \\ \therefore x &= 1.3 \text{ km} \\ \therefore \text{Side length is } 1.3 \text{ km}\end{aligned}$$

42. **B+** Rectilinear Figures (253432) **Core**

$$\begin{aligned}\text{Length of 1 side} &= \frac{24}{6} \\ &= 4 \text{ cm}\end{aligned}$$

$$\begin{aligned}\therefore \text{Perimeter} &= 16 \times 4 \\ &= 64 \text{ cm}\end{aligned}$$

43. **B+** Rectilinear Figures (253435) **Core**

$$\begin{aligned}\text{Let } x &= \text{height} \\ \frac{3}{2}x &= \text{length} \\ 2 \times \left(x + \frac{3}{2}x\right) &= 40 \\ 2 \times \left(\frac{5x}{2}\right) &= 40 \\ 5x &= 40 \\ x &= 8 \\ \therefore \text{Height} &= 8 \text{ cm} \\ \therefore \text{Length} &= \frac{3}{2} \times 8 \\ &= 12 \text{ cm}\end{aligned}$$

44. **A** Rectilinear Figures (253451) **Core**

Fencing required

$$= 3 \times (450 + 200 + 150 + 500 + 600)$$

$$= 3 \times 1900$$

$$= 5700 \text{ m} = 5.7 \text{ km}$$