

School Name

Mathematics Test 2017

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:

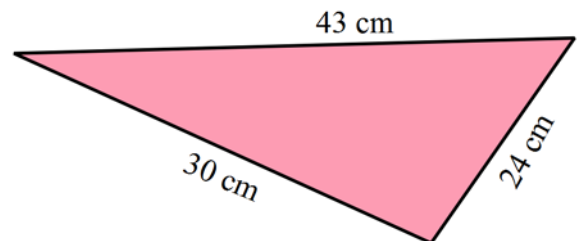
Writing the answer in the box provided.

or

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

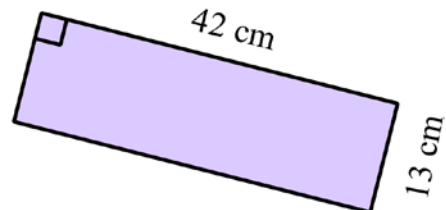
Show any working out on the test paper. Calculators are **not** allowed.

1. What is the perimeter of the triangle shown?



2. What is the perimeter of this rectangle?

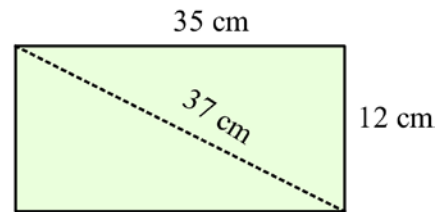
- ☐ 55 cm
☐ 84 cm
☐ 97 cm
☐ 110 cm



3. What is the perimeter of an equilateral triangle which has sides 32 cm?

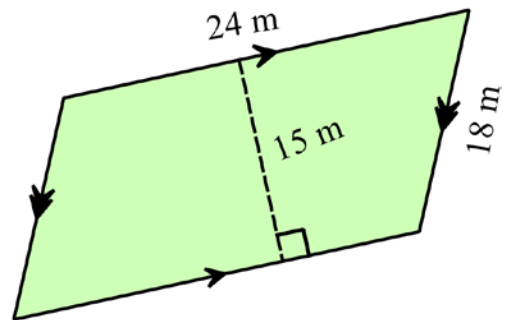
- ☐ 64 cm
☐ 96 cm
☐ 128 cm
☐ 192 cm

4. Find the perimeter of this rectangle.



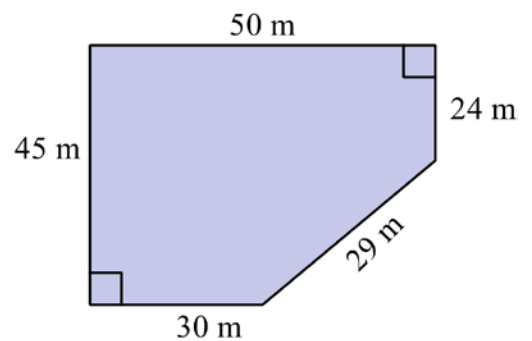
5. What is the perimeter of the parallelogram shown?

- ☐ 66 m
☐ 72 m
☐ 78 m
☐ 84 m

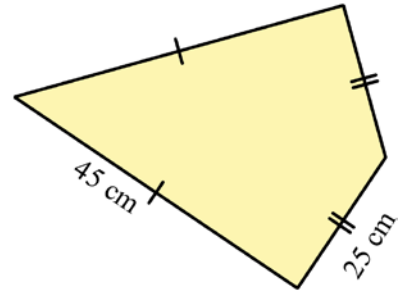


6. What is the perimeter of this shape?

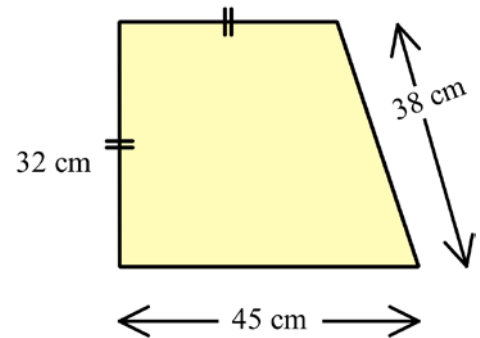
- ☐ 149 m
☐ 154 m
☐ 178 m
☐ 356 m



7. What is the perimeter of the kite?

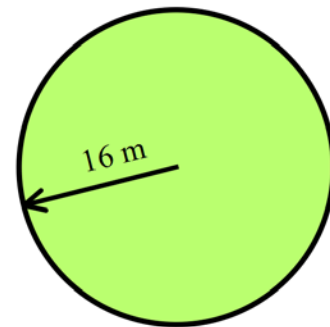


8. What is the perimeter of the trapezium?

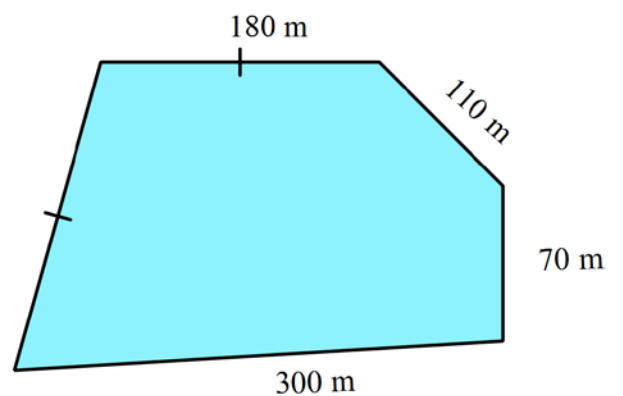


9. The circle has a radius of 16 m.
What is its circumference, in terms of π ?

- ☐ 16π m
☐ 32π m
☐ 64π m
☐ 256π m

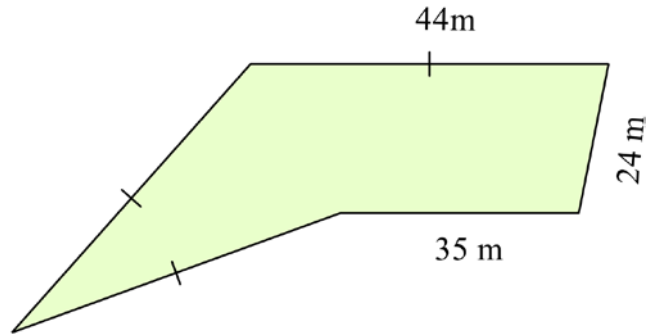


10. Find the perimeter of the irregular pentagon.

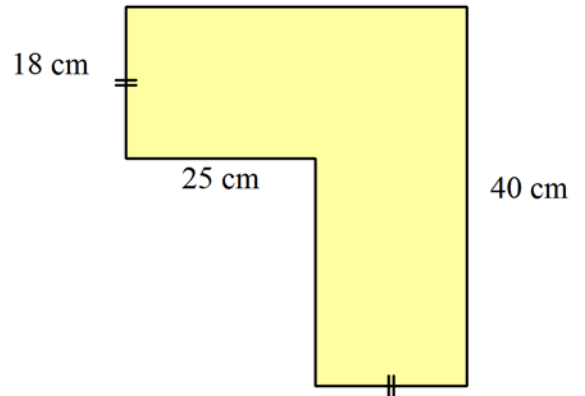


11. What is the perimeter of the polygon shown?

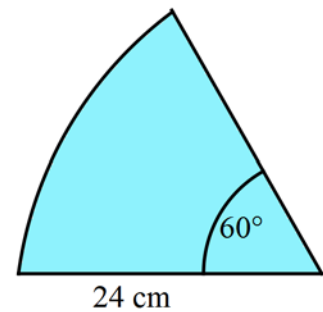
- ☐ 191 m
☐ 215 m
☐ 235 m
☐ 259 m



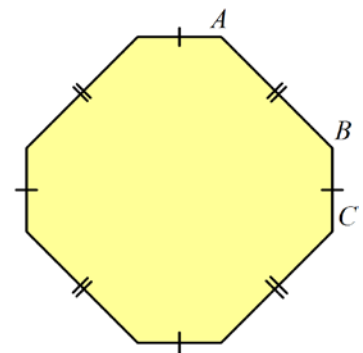
12. What is the perimeter of the shape shown?
(All angles are right angles.)



13. A sector of a circle is shown.
What is its perimeter in terms of π ?

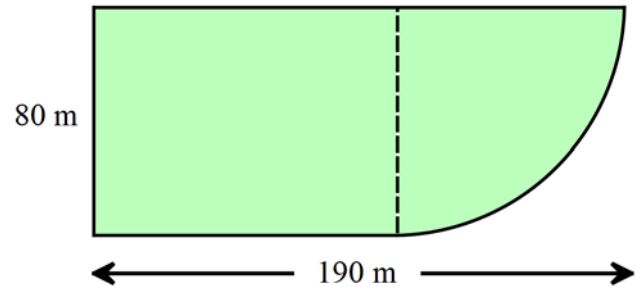


14. The distance AB is 24 cm.
The perimeter of this shape is 160 cm.
What is the distance BC ?



15. Find the perimeter of the shape shown below in terms of π .

- ☐ $20\pi + 380$ m
- ☐ $20\pi + 460$ m
- ☐ $40\pi + 380$ m
- ☐ $40\pi + 460$ m



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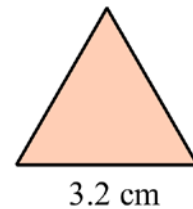
Writing the answer in the box provided.

or

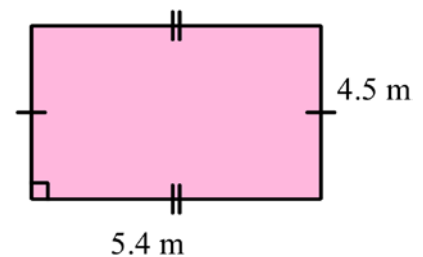
Shading in the bubble for the correct answer from the four choices provided.

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

1. What is the perimeter of the equilateral triangle shown?

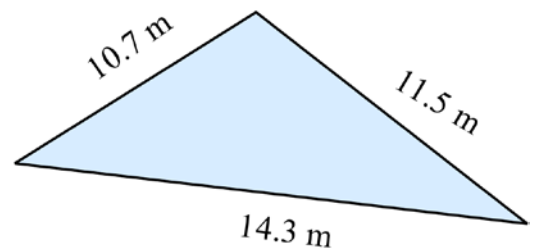


2. Find the perimeter of this rectangle.



3. What is the perimeter of the triangle?

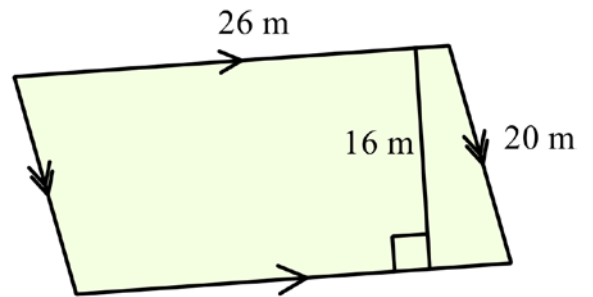
- ☐ 22.2 m
- ☐ 25.8 m
- ☐ 36.5 m
- ☐ 123.0 m



4.

What is the perimeter of the parallelogram shown?

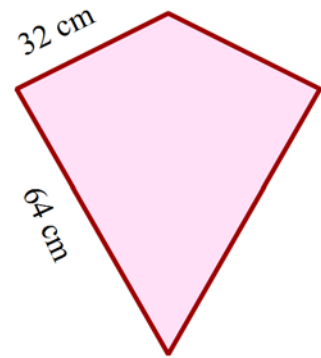
- ☐ 46 m
☐ 62 m
☐ 88 m
☐ 92 m



5.

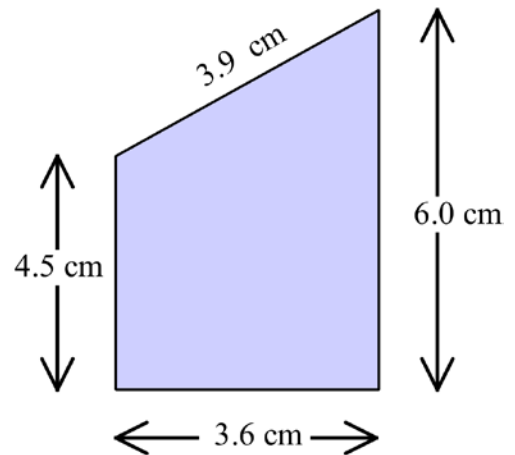
What is the perimeter of the kite?

- ☐ 96 cm
☐ 192 cm
☐ 216 cm
☐ 2048 cm



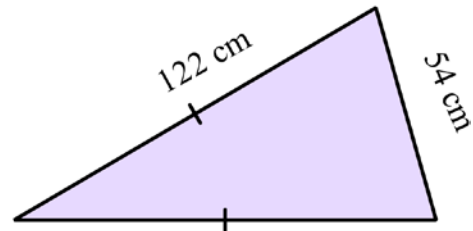
6.

A trapezium has the dimensions shown.
What is its perimeter?



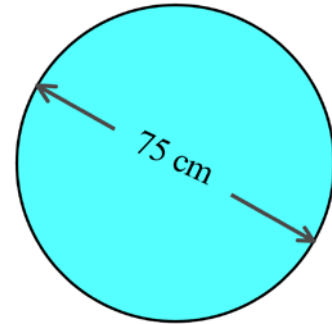
7.

What is the perimeter of the triangle?



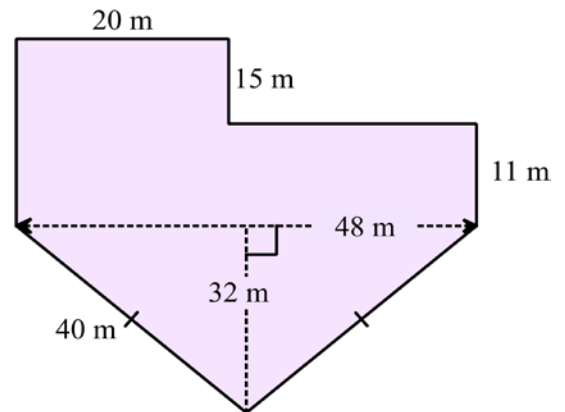
8. Find the circumference of this circle, correct to the nearest mm.

- ☐ 117.8 cm
☐ 235.6 cm
☐ 353.4 cm
☐ 471.2 cm



9. What is the perimeter of the shape?

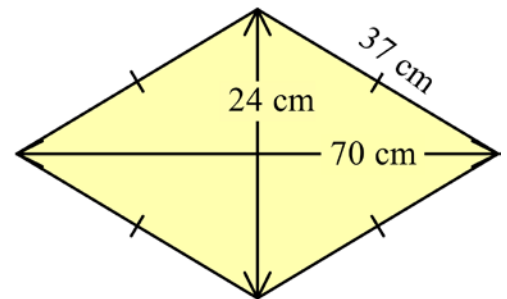
- ☐ 180 m
☐ 212 m
☐ 228 m
☐ 260 m



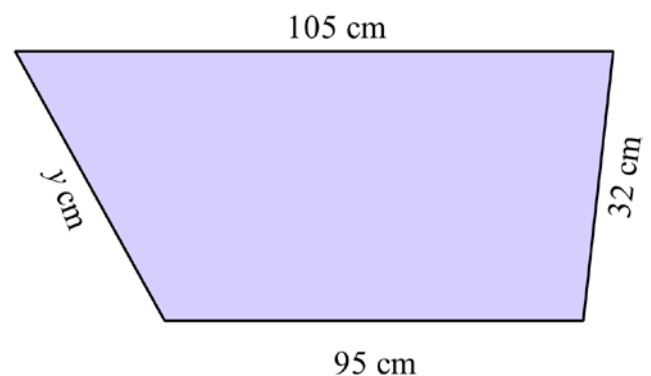
10. A window is to be made in the shape of a rhombus with the dimensions shown.

A wooden frame goes around the edge of the window and across both diagonals.

What is the total length of wood in the frame?



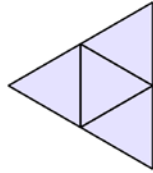
11. The perimeter of this shape is 275 cm.
What is the value of y ?



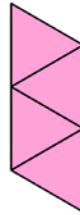
12.

The three shapes below are each made using four 1 cm equilateral triangles. Which statement below is true?

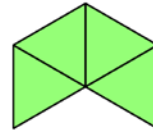
Shape 1



Shape 2



Shape 3

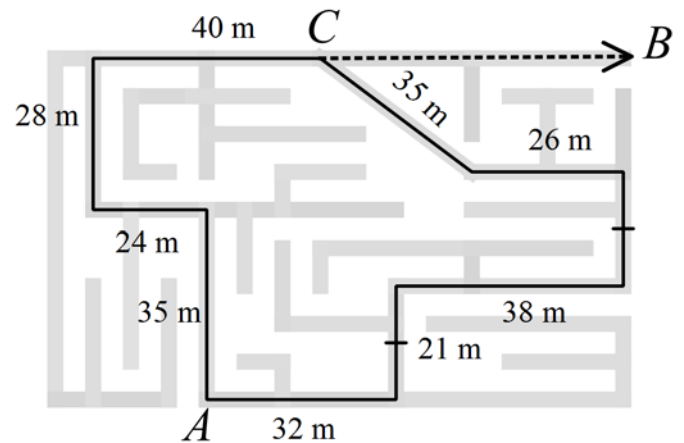


- ☐ All three shapes have the same perimeter.
- ☐ Only shapes 1 and 2 have the same perimeter.
- ☐ Only shapes 1 and 3 have the same perimeter.
- ☐ Only shapes 2 and 3 have the same perimeter.

13.

Will enters the maze shown at the point A and aims to reach point B , but instead he takes a wrong turn at C and finds himself back at A .

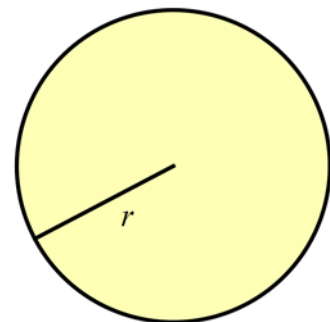
How many extra metres has he walked, than if he left the maze at B ?



14.

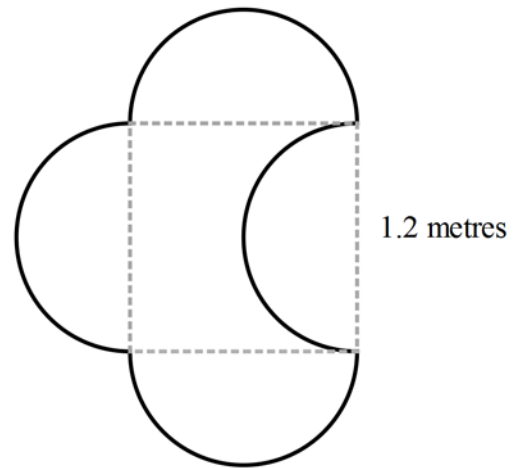
A circle with a radius of r metres has a circumference of 104 metres.

What is the value of r , to the nearest cm?



15. The logo for company shown is created by drawing semicircles around a square (shown with broken lines).

What is the perimeter of the logo?



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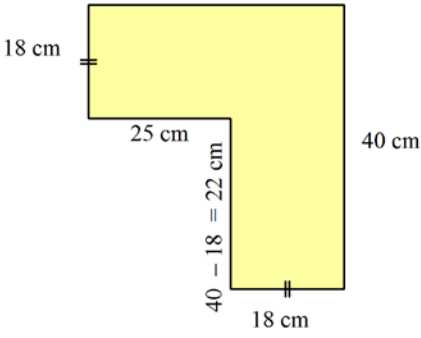
Year 7

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ANSWERS

Question	Working and Answer
1.	$P = 43 + 30 + 24 = \mathbf{97\text{ cm}}$
2.	$P = 2 \times (42 + 13) = 2 \times 55 = 110\text{ cm}$ 4th Answer
3.	$P = 3 \times 32 = 96\text{ cm}$ 2nd Answer
4.	$P = 2 \times (35 + 12) = 2 \times 47 = \mathbf{94\text{ cm}}$
5.	$P = 24 \times 2 + 18 \times 2 = 48 + 36 = 84\text{ m}$ $= 2 \times (24 + 18) = 84\text{ m}$ 4th Answer
6.	$P = 50 + 45 + 30 + 29 + 24 = 178\text{ m}$ 3rd Answer
7.	$P = 2 \times (45 + 25) = 2 \times 70 = \mathbf{140\text{ cm}}$
8.	$P = 32 \times 2 + 38 + 45$ $= 64 + 83 = \mathbf{147\text{ m}}$
9.	$C = 2 \times \pi \times \text{radius} = 2 \times \pi \times 16 = 32\pi\text{ m}$ 2nd Answer
10.	$P = 180 \times 2 + 110 + 70 + 300$ $= 360 + 480$ $= \mathbf{840\text{ cm}}$

Question	Working and Answer
11.	$P = 35 + 24 + 44 \times 3$ $= 59 + 132$ $= 191 \text{ m}$ <p>1st Answer</p>
12.	$P = 40 + 43 + 18 + 25 + 22 + 18$ $= 166 \text{ cm}$ <p>OR</p> $P = 43 \times 2 + 40 \times 2$ $= 86 + 80$ $= \mathbf{166 \text{ cm}}$ 
13.	<p>Circumference of whole circle = $2 \times \pi \times 24 = 48\pi$</p> <p>Curved section of quadrant = $\frac{60}{360} \times 48\pi = \frac{1}{6} \times 48\pi = 8\pi$</p> <p>Perimeter = $8\pi + 24 \times 2$</p> $= \mathbf{48 + 8\pi \text{ cm}}$
14.	<p>There are 4 intervals of the same length as BC.</p> <p>There are 4 intervals of the same length as AB.</p> <p>Perimeter = $4 \times 24 + 4 \times BC = 160$</p> $96 + 4BC = 160$ $4BC = 160 - 96 = 64$ $BC = 64 \div 4 = \mathbf{16 \text{ cm}}$
15.	<p>The arc has a radius of 80,</p> <p>So arc length = $\pi \times 160 \div 4 = 40\pi$</p> <p>Perimeter = $40\pi + 80 + 190 + (190 - 80)$</p> $= 40\pi + 380 \text{ m}$ <p>3rd Answer</p>

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Question	Working and Answer
1.	$P = 3 \times 3.2 = \mathbf{9.6 \text{ cm}}$
2.	$\begin{aligned} P &= (5.4 + 4.5) \times 2 \\ &= 9.9 \times 2 \\ &= \mathbf{19.8 \text{ m}} \end{aligned}$
3.	$\begin{aligned} P &= 10.7 + 11.5 + 14.3 \\ &= 36.5 \text{ m} \end{aligned}$ <p>3rd Answer</p>
4.	$\begin{aligned} P &= (26 + 20) \times 2 \\ &= 46 \times 2 \\ &= 92 \text{ m} \end{aligned}$ <p>4th Answer</p>
5.	$\begin{aligned} P &= 2 \times (32 + 64) \\ &= 2 \times 96 \\ &= 192 \text{ cm} \end{aligned}$ <p>2nd Answer</p>
6.	$\begin{aligned} P &= 4.5 + 3.6 + 6.0 + 3.9 \\ &= \mathbf{18.0 \text{ cm}} \end{aligned}$
7.	$\begin{aligned} P &= 54 + 122 \times 2 \\ &= 54 + 244 \\ &= \mathbf{298 \text{ cm}} \end{aligned}$

8.	$C = \pi \times \text{diameter}$ $= \pi \times 75$ $= 235.61944$ $= 235.6 \text{ cm (nearest mm)}$ 2nd Answer
9.	$P = 48 + 15 + 11 + 26 + 40 \times 2$ $= 180 \text{ m}$ 1st Answer
10.	$P = 4 \times 37 + 70 + 24$ $= 148 + 94$ $= \mathbf{242 \text{ cm}}$
11.	$P = 105 + 32 + 95 + y$ $275 = 232 + y$ $y = 275 - 232$ $y = \mathbf{43}$
12.	Shape 1 has a perimeter of 6 cm Shape 2 has a perimeter of 6 cm Shape 3 has a perimeter of 6 cm All three shapes have the same perimeter. 1st Answer
13.	Dist actually walked = $35 + 24 + 28 + 40 + 35 + 26 + 21 + 38 + 21 + 32$ $= 300 \text{ m}$ Dist A to B = $35 + 24 + 28 + 24 + 32 + 38$ $= 181 \text{ m}$ Extra Dist Walked = $300 - 181 = \mathbf{119 \text{ m}}$
14.	$\text{Circ} = \pi \times \text{diameter}$ $104 = \pi \times d$ $d = \frac{104}{\pi} = 33.104228$ $r = \frac{d}{2} = \frac{33.104228}{2}$ $= 16.5521140$ $= \mathbf{16.55 \text{ m (nearest cm)}}$
15.	There are 4 semicircles all with a diameter of 1.2 m. This is the same as 2 circles with diameter 1.2 m. Perimeter = $2 \times \pi \times 1.2$ $= 7.539822368615$ $= \mathbf{7.54 \text{ m (nearest cm)}}$

