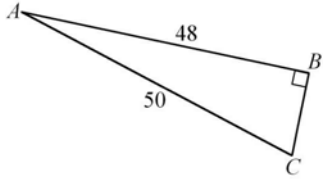


Revision Paper 10: Pythagoras' Theorem

1. Determine whether each of the following triangles is a right-angled triangle.

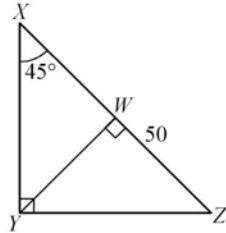
- (a) $\triangle ABC$ with $AB = 6$ cm, $BC = 9$ cm and $CA = 11$ cm.
- (b) $\triangle XYZ$ with $XY = 9$ cm, $YZ = 40$ cm and $ZX = 41$ cm.
- (c) $\triangle PQR$ with $PQ = 15$ m, $QR = 112$ m and $RQ = 113$ m.

2. In $\triangle ABC$, $\angle B = 90^\circ$, $AB = 48$ cm and $AC = 50$ cm.



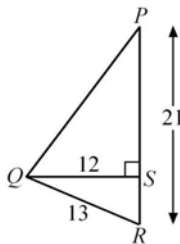
- (a) Find the length of BC .
- (b) Hence, find the area of $\triangle ABC$.

3. In the diagram, $XZ = 50$ cm and $\angle YXZ = 45^\circ$. $\triangle XYZ$ and $\triangle WXY$ are right-angled triangles.



- (a) Find the length of YZ .
- (b) Show that $WX = WY = WZ$.

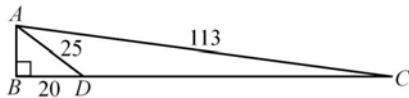
4. In the diagram, $\angle QSP = 90^\circ$, $PR = 21$ cm, $QS = 12$ cm and $QR = 13$ cm.



Find the length of

- (a) RS ,
- (b) PQ .

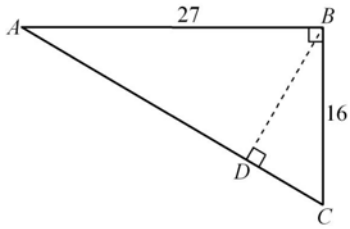
5. In the diagram, BDC is a straight line and $\angle ABC = 90^\circ$. The dimensions given are in m.



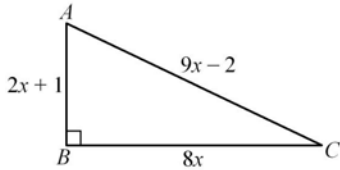
Find the length of

- (a) AB ,
- (b) DC .

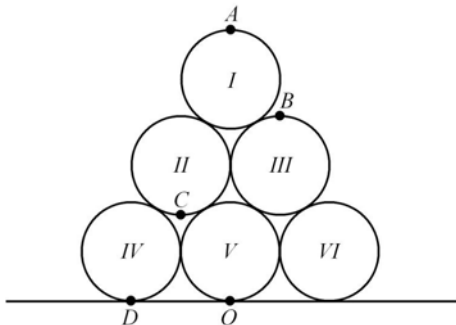
6. In the diagram, ADC is a straight line and $\angle ABC = 90^\circ$. The line BD is perpendicular to AC . The dimensions given are in cm.



- (a) Find the area of $\triangle ABC$.
 (b) Find the length of AC .
 (c) Hence or otherwise, calculate the length of BD .
7. The area of a right-angled triangle is 546 cm^2 and the length of the shortest side is 13 cm. Find the lengths of the other two sides.
8. The perimeter of a right-angled triangle is 180 cm and the length of the shortest side is 18 cm. Find the lengths of the other two sides.
9. The length of the diagonals of a rhombus are 24 cm and 32 cm.
 (a) Find the length of the rhombus.
 (b) Hence, find the perimeter of the rhombus.
10. The diagram shows right-angled triangle ABC . The dimensions given are in cm.



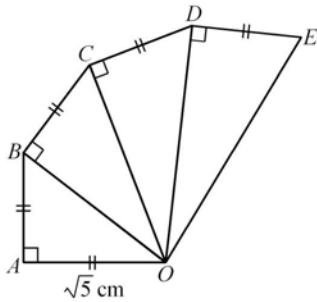
- (a) Form an equation in x and show that the equation can be simplified as $13x^2 - 40x + 3 = 0$.
 (b) Solve the equation $13x^2 - 40x + 3 = 0$.
 (c) Explain why one of the solutions is not applicable.
11. Six solid cylinders each of base radius 10 cm are stacked together on a flat surface. The diagram shows the cross sectional view of the stacked cylinders.



The points O and D are on the flat surface, A and B are the highest points on cylinders I and III respectively and C is the lowest point on cylinder II . Find the length of

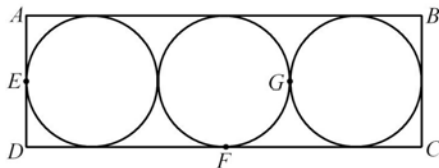
- (a) BC ,
 (b) OA ,
 (c) AD .

12. The figure shows a series of four right-angled triangles. In the figure, $OA = AB = BC = CD = DE = \sqrt{5}$ cm.



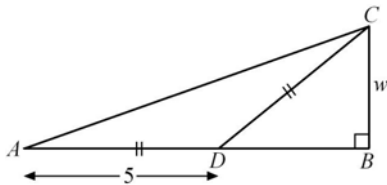
- (a) Find the length of OE .
 (b) Hence, find the
 (i) the perimeter of the figure,
 (ii) the area of the figure.
13. The perimeter and area of a rectangle is 68 cm and 240 cm^2 respectively. Find the length of the diagonal without solving for the length and breadth of the rectangle.

14. In the diagram, three identical circles are fitted inside a rectangle.

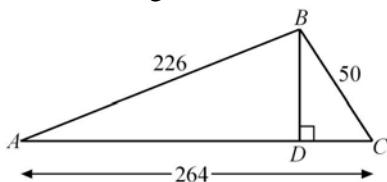


If the diameter of each circle is 10 cm, find the length of the straight line

- (a) BG ,
 (b) BF ,
 (c) BE .
15. In the diagram, $\triangle ABC$ is a right-angled triangle, $AD = CD = 5$ cm and $BC = w$ cm.

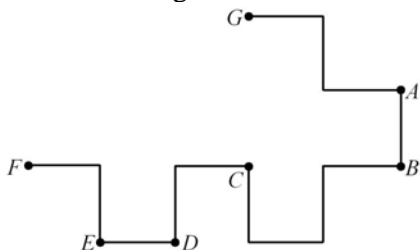


- (a) Find the value of w if $BC : AB = 1 : 2$.
 (b) Hence, find the
 (i) perimeter of $\triangle ABC$,
 (ii) area of $\triangle ABC$.
16. In the diagram, BD is the perpendicular distance from B to the line AC . The dimensions given are in cm.



- (a) Find the length of BD .
 (b) Hence, write down the area of $\triangle ABC$.

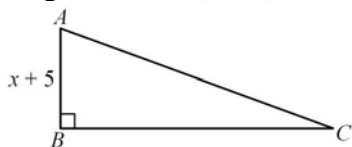
17. The diagram shown is constructed using lines that are either parallel or perpendicular to each other. The length of each line is 1 unit.



Find the length of

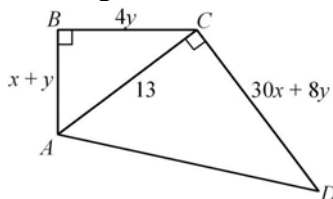
- (a) AC , (b) DG , (c) BE , (d) AF , (e) FG .

18. The area of the right-angled triangle ABC is $(1.5x^2 + 10x + 12.5)$ cm^2 . The length of AB is $(x + 5)$ cm .



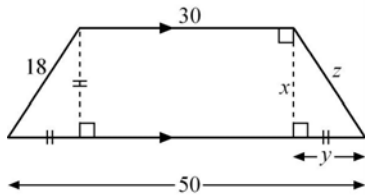
- (a) Find, in terms of x , the length of BC .
 (b) If $AC^2 = 100$, form an equation in x and show that the equation can be simplified as $x^2 + 4x - 5 = 0$.
 (c) Solve the equation $x^2 + 4x - 5 = 0$.
 (d) Hence, find
 (i) the perimeter of $\triangle ABC$,
 (ii) the area of $\triangle ABC$.

19. The diagram shows two right-angled triangles with a common side AC . The length of AC is 13 units.



- (a) Find the values of x and y if y is 1 unit more than x .
 (b) Hence, find the length of AD .
 (c) Find
 (i) the perimeter of quadrilateral $ABCD$,
 (ii) the area of quadrilateral $ABCD$.

20. In the diagram, the dimensions given are in cm .



- (a) Write down the name of the quadrilateral.
 (b) Find the values of x , y and z .
 (c) Hence, find
 (i) the perimeter of the quadrilateral,
 (ii) the area of the quadrilateral.