Pythagoras' Theorem and Trigonometry (F)

Intervention Booklet

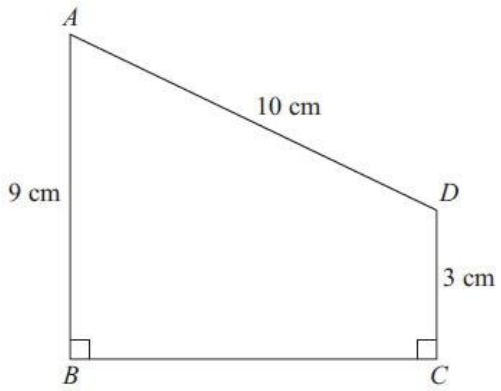
Pythagoras' Theorem

Things to remember:

- $a^2 + b^2 = c^2$
- First you've got to square both sides of the triangle.
- Then decide whether to add or subtract.
- Finish off with a square root.
- Make sure you round your answer correctly.

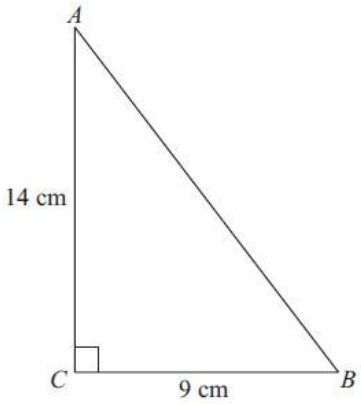
Questions:

1. *ABCD* is a trapezium.
Diagram NOT accurately drawn
AD = 10 cm
AB = 9 cm
DC = 3 cm
Angle *ABC* = angle *BCD* = 90°
Calculate the length of *AC*.
Give your answer correct to 3 significant figures.



…… cm
(Total for Question is 5 marks)

2. Diagram NOT accurately drawn
Calculate the length of *AB.*
Give your answer correct to 1 decimal place.

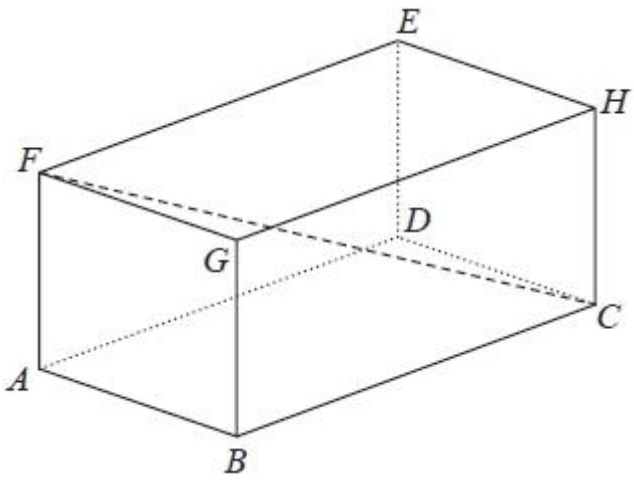


…… cm
(Total for Question is 3 marks)

3. Triangle *ABC* has perimeter 20 cm.
AB = 7 cm.
BC = 4 cm.
By calculation, deduce whether triangle *ABC* is a right–angled triangle.

(Total for question = 4 marks)

4. The diagram shows a cuboid *ABCDEFGH*.



AB = 7 cm, *AF* = 5 cm and *FC* = 15 cm.
Calculate the volume of the cuboid.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for question is 4 marks)

5. *ABCD* is a square with a side length of 4*x*
M is the midpoint of *DC*.
N is the point on *AD* where *ND* = *x*
BMN is a right-angled triangle.

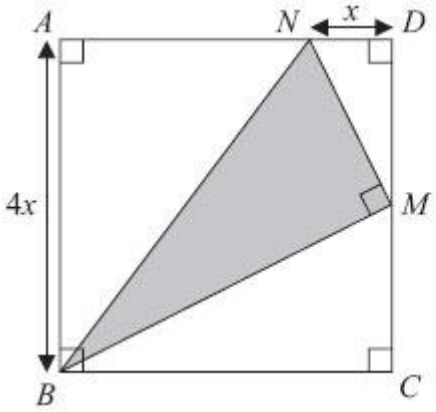
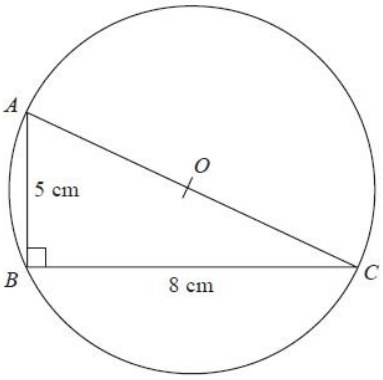


Diagram **NOT** accurately drawn

Find an expression, in terms of *x*, for the area of triangle *BMN*.
Give your expression in its simplest form.

.....
(Total for Question is 4 marks)

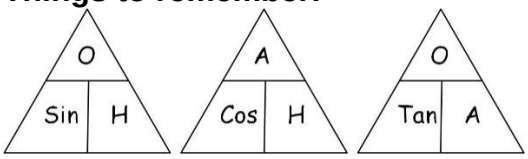
6. Diagram NOT accurately drawn
ABC is a right-angled triangle.
A, *B* and *C* are points on the circumference of a circle centre *O*.
AB = 5 cm
BC = 8 cm
AOC is a diameter of the circle.
Calculate the circumference of the circle.
Give your answer correct to 3 significant figures.

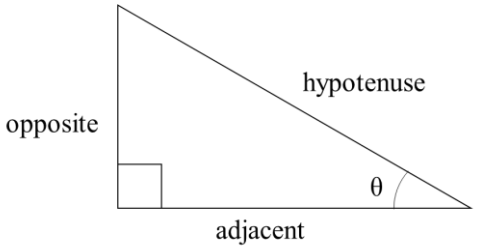


..... cm
(Total for question = 4 marks)

Trigonometry – SOH CAH TOA

Things to remember:





1. Label your sides first, you'll need O, H and A...
2. Choose if you need SOH, CAH or TOA...
3. Cover the one you need with your thumb,
4. Write the equation,
5. Solve it, then you're done!

Questions:

1. The diagram shows triangle *ABC*.
BC = 8.5 cm.
Angle *ABC* = 90°.
Angle *ACB* = 38°.
Work out the length of *AB*.
Give your answer correct to 3 significant figures.

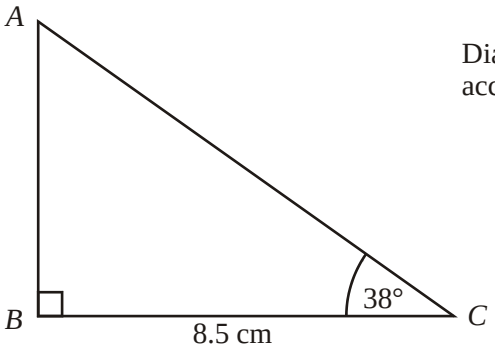


Diagram **NOT** accurately drawn

..... cm
(Total 3 marks)

2.

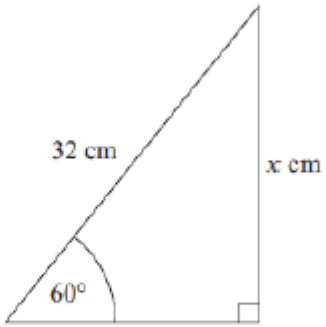


Diagram **NOT** accurately drawn

Calculate the value of x.
Give your answer correct to 3 significant figures.

..... °
(Total 3 marks)

3. A lighthouse, *L*, is 3.2 km due West of a port, *P*.
A ship, *S*, is 1.9 km due North of the lighthouse, *L*.

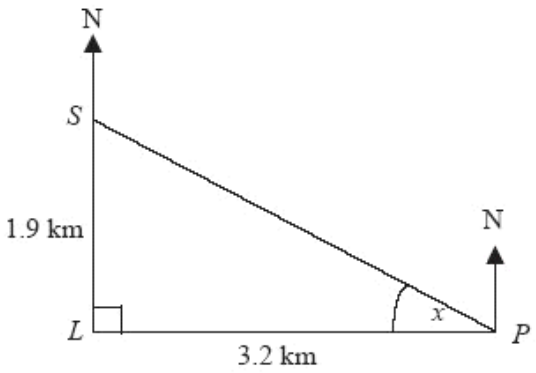


Diagram **NOT** accurately drawn

(a) Calculate the size of the angle marked *x*.
Give your answer correct to 3 significant figures.

..... °
(3)

(b) Find the bearing of the port, *P*, from the ship, *S*.
Give your answer correct to 3 significant figures.

..... °
(1)
(Total 4 marks)

4.

The diagram shows a quadrilateral *ABCD*.

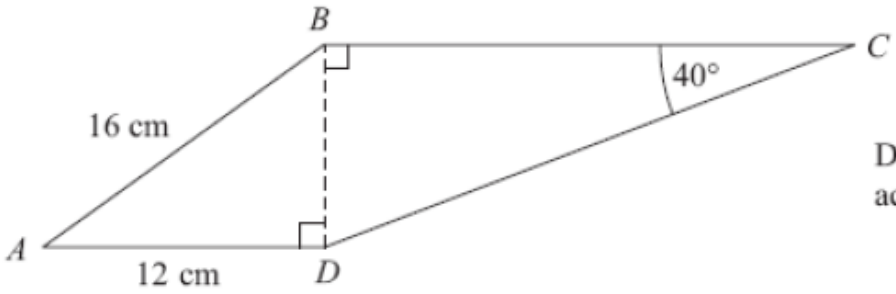


Diagram **NOT** accurately drawn

AB = 16 cm.
AD = 12 cm.
Angle *BCD* = 40°.
Angle *ADB* = angle *CBD* = 90°.

Calculate the length of *CD*.
Give your answer correct to 3 significant figures.

..... °
(Total 5 marks)