

868



TUTORS

Preparation for

**High School
Mathematics**

Trigonometry

(Right angled triangles)

Math



Instructions and Tips:

- ✓ **You have 75 minutes to complete this worksheet**
- ✓ **This worksheet consists of 6 questions**
- ✓ **Write answers in the spaces provided**
- ✓ **All working must be clearly shown**



Student Name: _____

Student ID: _____

Date: __ / __ / ____

Total Score:

Highest Score:

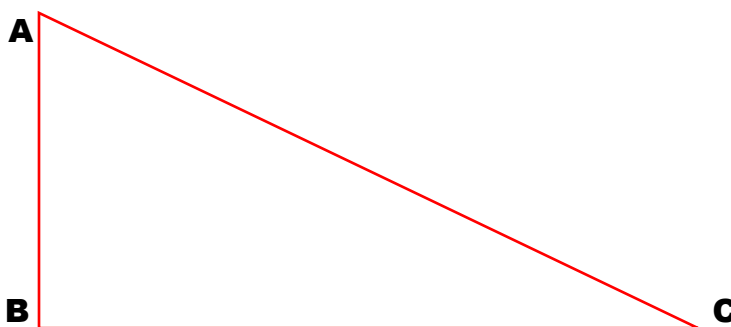
Tutor's Comments:

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Question 1

Each right-angled triangle below has an ‘angle of interest’ indicated. This ‘angle of interest’ is an angle that you can be asked to solve. Using the information below, label the right angle, the ‘angle of interest’ (as x), the opposite, the adjacent and the hypotenuse sides for the following triangles.

(a)



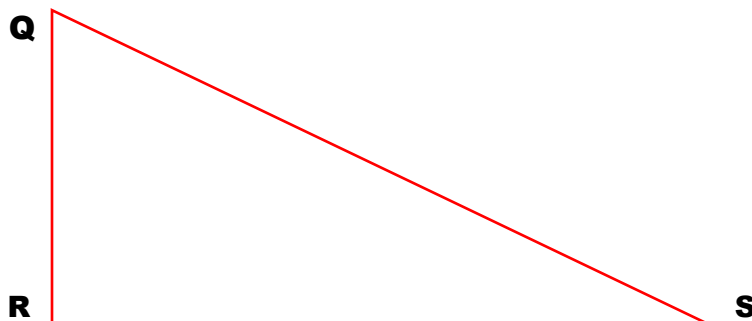
$\angle ABC = 90^\circ$

$\angle ACB = \text{angle of interest}$



(5 marks)

(b)

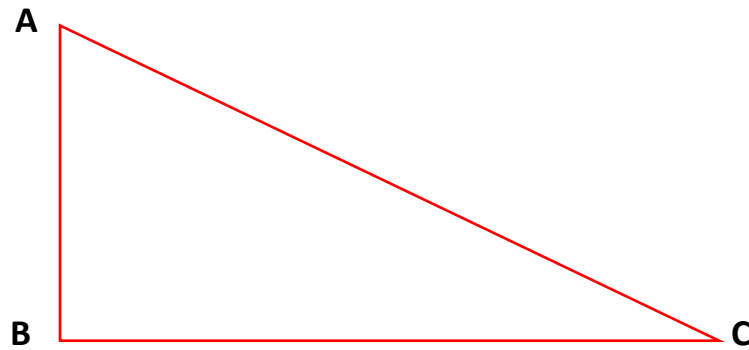


$\angle QRS = 90^\circ$

$\angle RQS = \text{angle of interest}$

(5 marks)

(c)



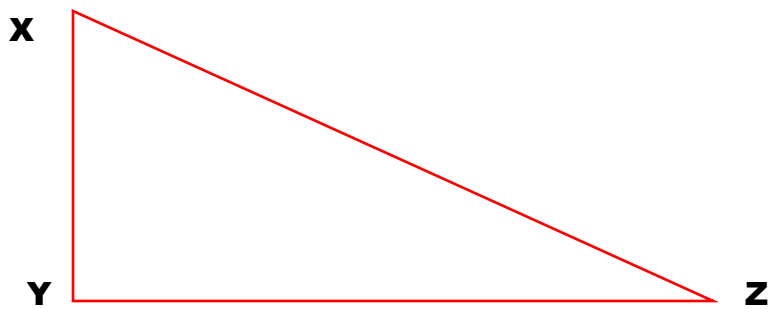
$\angle ABC = 90^\circ$

$\angle BAC = \text{angle of interest}$

(5 marks)



(d)

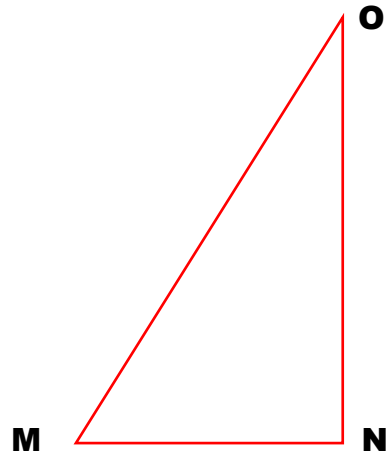


$\angle XYZ = 90^\circ$

$\angle YXZ = \text{angle of interest}$

(5 marks)

(e)

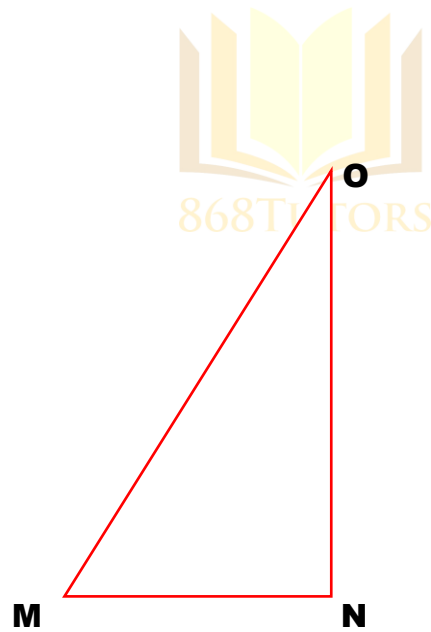


$$\angle MNO = 90^\circ$$

$\angle OMN = \text{angle of interest}$

(5 marks)

(f)



$$\angle MNO = 90^\circ$$

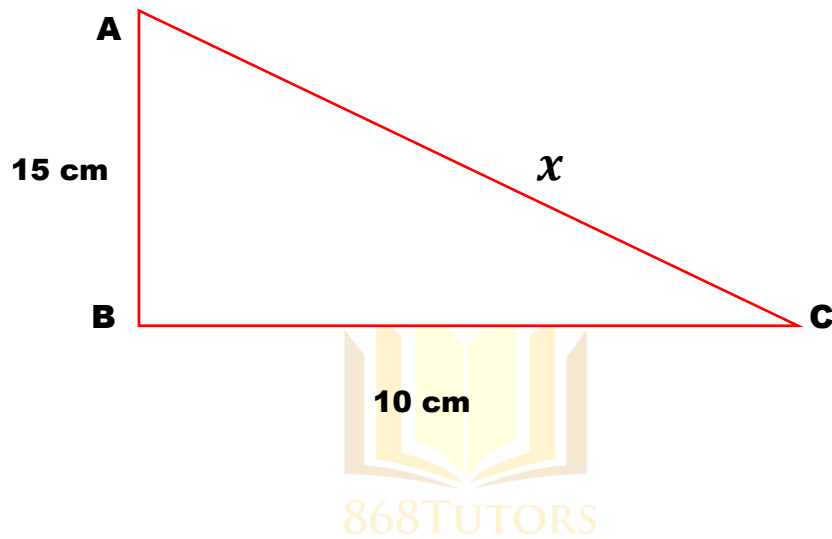
$\angle MON = \text{angle of interest}$

(5 marks)

Question 2

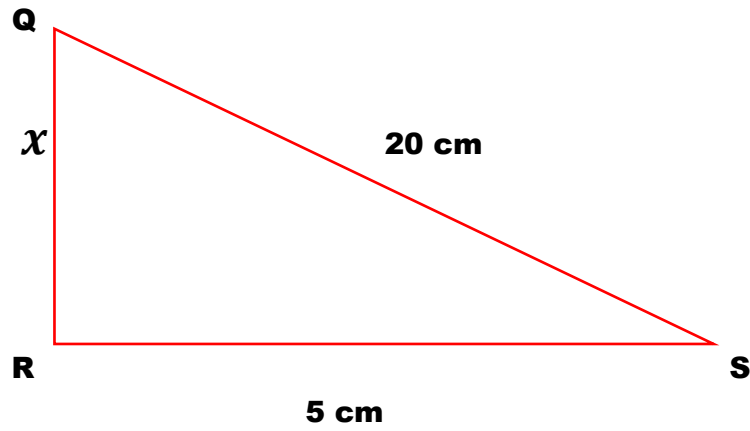
Pythagoras is credited with a theorem involving right angled triangles. Apply the Pythagoras' theorem in the following questions to find the lengths of the unknown sides.

(a) $\angle ABC = 90^\circ$



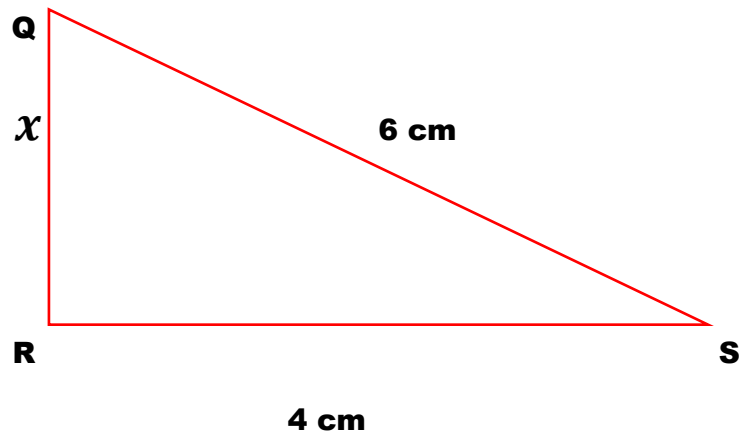
(3 marks)

(b) $\angle QRS = 90^\circ$



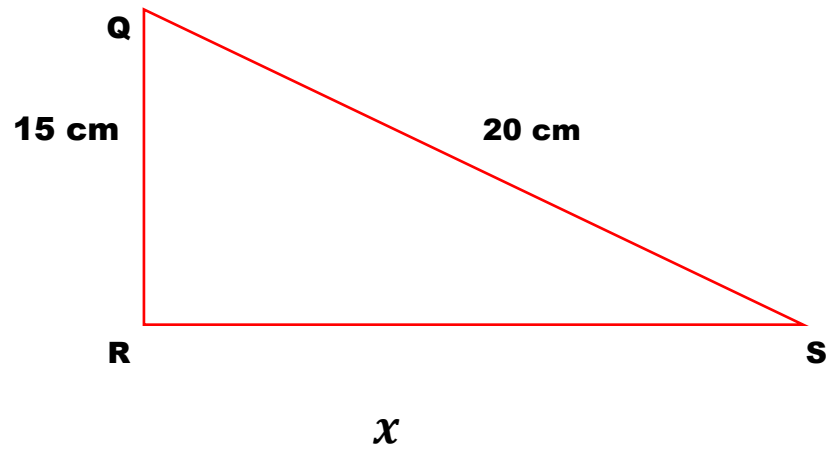
(3 marks)

(c) $\angle QRS = 90^\circ$



(3 marks)

(d) $\angle QRS = 90^\circ$



(3 marks)

Question 3 (Angle of Elevation and Angle of Depression)

For each question below, draw the appropriate right angled triangle.

Junior Addams is 1.8 m tall. He stands 20 meters away from his local television antenna. The antenna is 25 meters high. What is the angle of elevation of the top of the antenna from his eyes?



(3 marks)

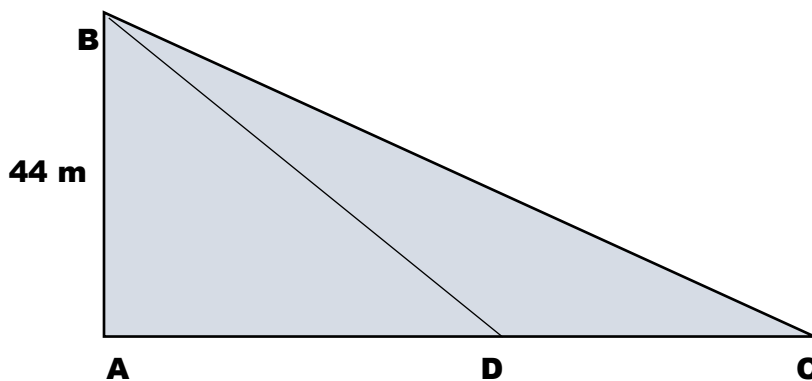
Question 4

A farmer in Los Iros enjoys the scenic view from the top of a cliff that is 40 m high. The farmer is 1.8 m tall and he is standing. He observes a personal watercraft that has stalled in the ocean. The angle of depression is 20° . If he is line with the watercraft, calculate the distance between the watercraft and the farmer.

(3 marks)

Question 5

The diagram below is a simplified diagram of a possible scenario. In the diagram AB represents a radio tower that is vertical. The radio tower rests on a horizontal plane and A, D and C are points on the horizontal plane.



AB = 44 m

The angles of elevation of the top of the tower B from D and C are 33° and 28° respectively

- (a) Indicate on the diagram above the relevant angles of elevation
(2 marks)

Determine

- (b) the length of AD

(3 marks)

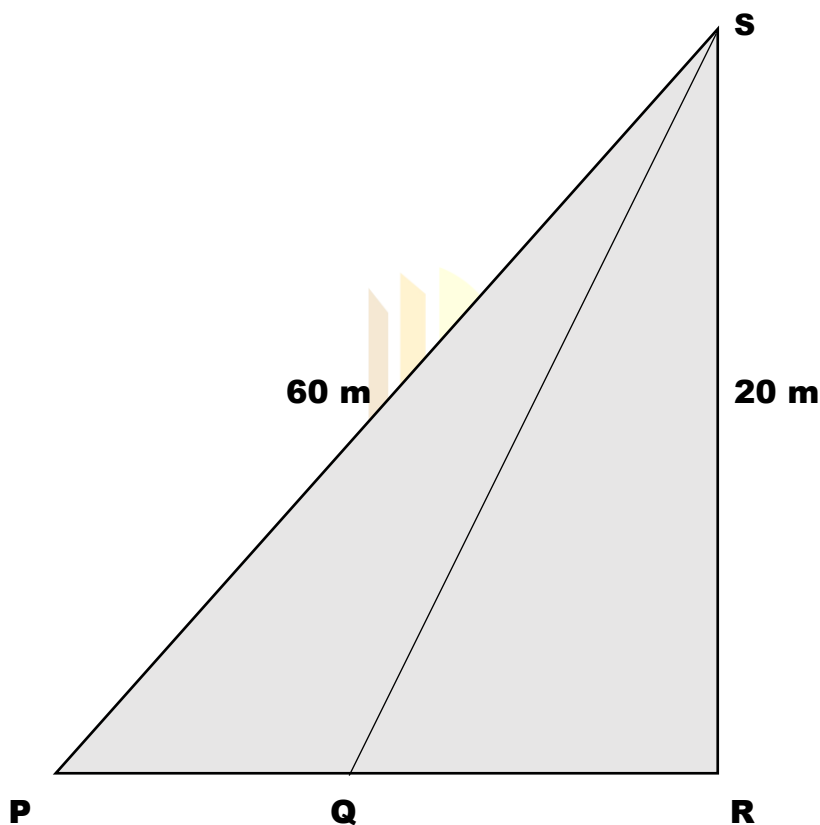
(c) the length of DC



(3 marks)

Question 6

The diagram below is a simplified diagram of a possible scenario. In the diagram RS represents an oil rig. Assume that the oil rig is vertical. The oil rig rests on a horizontal plane and P, Q and R are points on the horizontal plane.



$\angle SQR = 50^\circ$, $\angle PRS = 90^\circ$, $PS = 60\text{ m}$, $RS = 20\text{ m}$

Determine, giving your answer to 2 decimal places

(a) the size of $\angle SPR$

(2 marks)

(b) the length of PQ, in cm



(5 marks)



END OF WORKSHEET

