

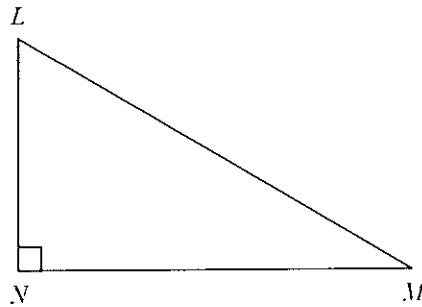
YEAR 10 ADVANCED TOPIC TEST
RIGHT-ANGLED TRIANGLE TRIGONOMETRY

Name: _____

Instructions

- Answer each question on the question paper in the spaces provided.
- Approved calculators may be used.
- Marks will not be awarded for poorly presented or untidy work.
- Show all necessary working.

1.



a) $\sin M =$ _____

b) $\tan M =$ _____

c) $\cos M =$ _____

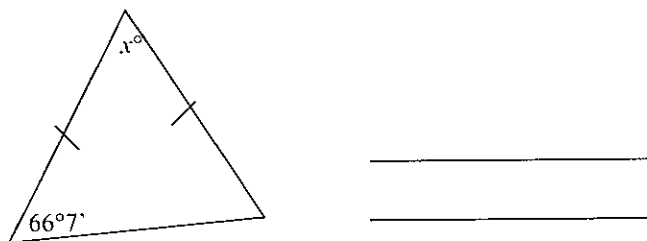
2. Convert the following to degrees and minutes:

a) 16.45° _____

b) 50.169° _____

c) 0.7° _____

3. Find the value of x in the following. Answer in degrees and minutes.



4.

a) Find the value of $\cos 51.3^\circ$ correct to 4 significant figures.

b) Find the value of $\tan 17^\circ 24'$ correct to 4 decimal places.

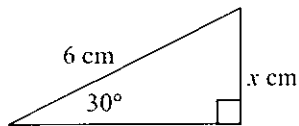
5. Find the value of θ in each question in degrees/minutes.

a) $\sin\theta = 0.7071$ _____

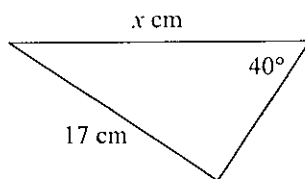
b) $\tan\theta = 2.1456$ _____

6. Find the value of x in each of the following triangles. Leave answer correct to 2 decimal places where necessary.

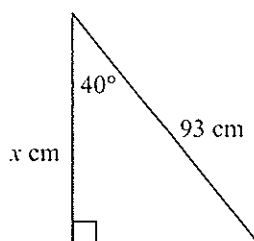
a)



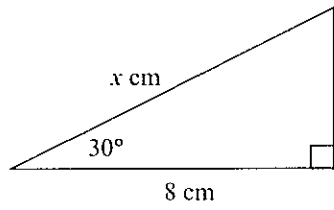
b)



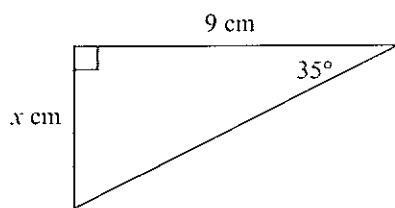
c)



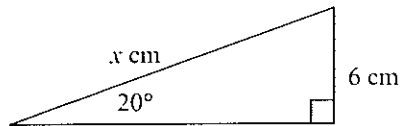
d)



e)



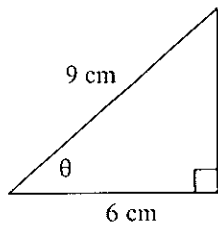
f)



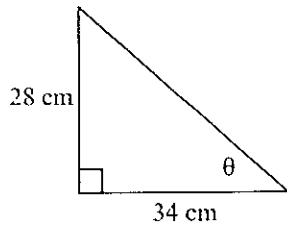
7. In $\triangle XYZ$, $\angle X = 90^\circ$, $\angle Z = 36^\circ$. If $YZ = 12.4\text{ cm}$ find the lengths of XY and XZ to 1 decimal place.

8. Find the size of θ to the nearest degree/minute.

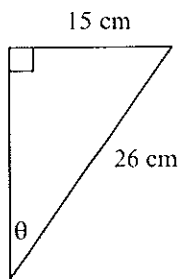
a)



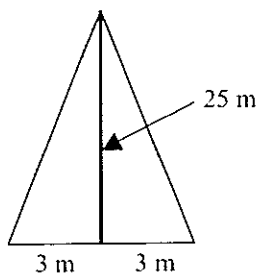
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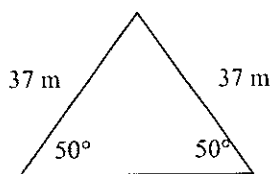
c)



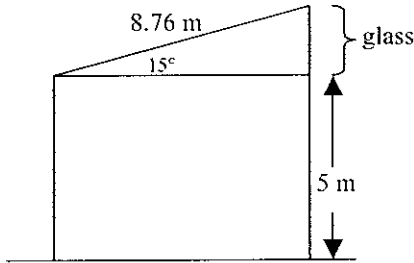
9. Tie ropes from the top of a 25 m antenna are anchored to pins 3 m from the base of the antenna. What is the angle (in degrees/minutes) that the ropes make with the antenna?



10. Find the altitude (perpendicular height) of the following isosceles triangle. (correct to 1 decimal place if required)

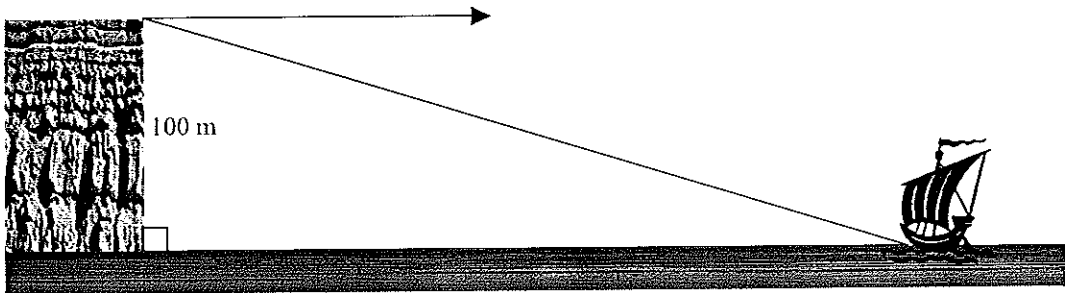


11. A sloping roof is 8.76m long and is at an angle of 15° to the horizontal. What is the height of the glass section of the wall and what is the total height of the wall?
 Answer correct to 2 decimal places.



12. A surveyor walks 260m due North from a survey marker at point P . He then walks due east to a point T directly North East of his original marker at P . What is the distance PT to the nearest centimetre? (Draw a diagram)

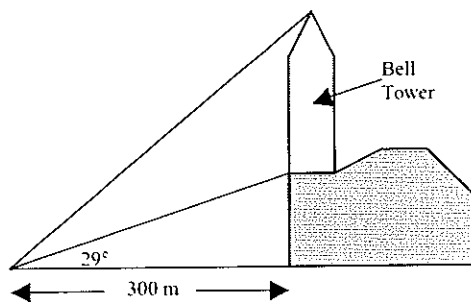
13. From the top of a 100m high vertical cliff a boat is observed directly out to sea at an angle of depression of 39° . How far is the boat from the base of the cliff to the nearest metre?



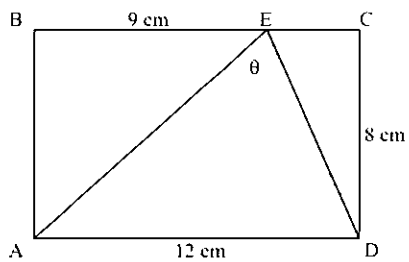
14. A pilot intended to fly due south, but a strong wind kept the aircraft on a bearing of 152° . After travelling 200 km on this bearing, how many kilometres had it travelled to the south? Also how many kilometres was it off course? (Give answer to the nearest tenth of a kilometre)

15. A Yacht leaves Sydney and sails $N23^\circ E$ for 220 km, while a Merchant Ship sails 113° for 350 km. What is the bearing of the Yacht from the Merchant Ship? (Answer to nearest minute in true bearing form)

16. From a position 300 metres in front of a church a surveyor observes the angle of elevation of the bottom of the bell tower as 29° and the angle of elevation of its top to be 36° . How high is the bell tower?



17. ABCD is a rectangle. Find the size of θ to the nearest degree.



18. Below is a rectangular pyramid. Find $\angle ACE$ to the nearest degree/minute.

