

Name:

Date: *April 26/27*

Teachers: Mr. Santowski and Mr. Dunham

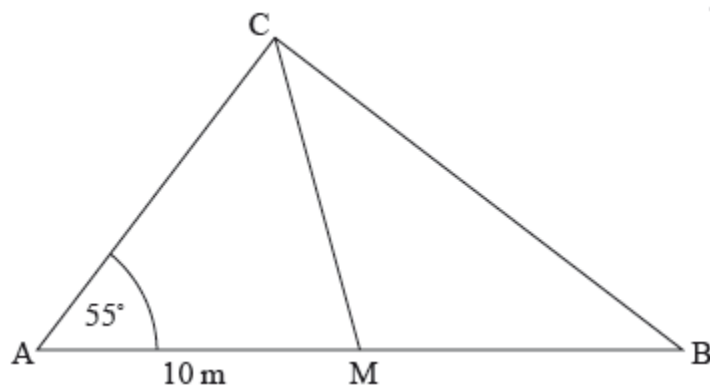
Calculator: Active

Marks: \_\_\_\_\_ out of 24

**CALCULATOR ACTIVE**

*Full marks are not necessarily awarded for a correct answer with no work. Answers must be supported by work and/or explanations. Where an answer is incorrect, some marks may be given for a correct method, provided this is shown by written work. You are therefore advised to show all work.*

- 1a. The diagram shows a triangle ABC. The size of angle CAB is 55 degrees and the length of AM is 10 where M is the midpoint of AB. Triangle CMB is isosceles (has two equal sides) with  $CM=MB$ .



**diagram not to scale**

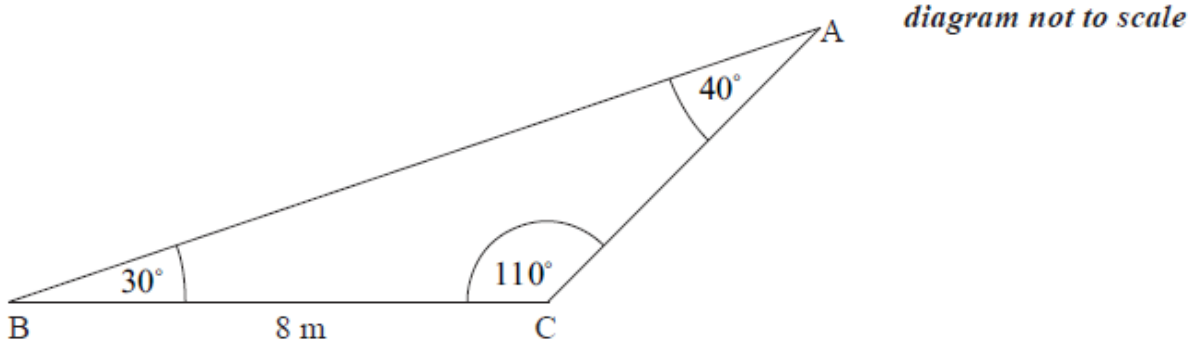
Write down the length of MB. (1)

1b. Find the size of angle CMA. (2)

1c. Hence, find the size of angle CMB (1)

1d. Find the length of CB (hint, use the cosine rule) (2)

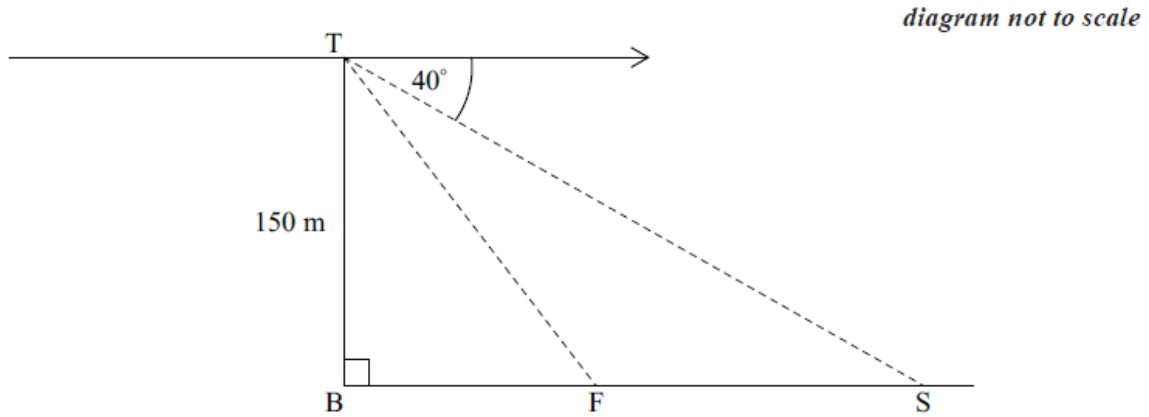
2a. In triangle ABC,  $BC=8\text{m}$ , angle  $ACB=110$  degrees, angle  $CAB=40$  degrees, and angle  $ABC=30$  degrees.



Find the length of AC. (3)

2b. Find the area of triangle ABC (3)

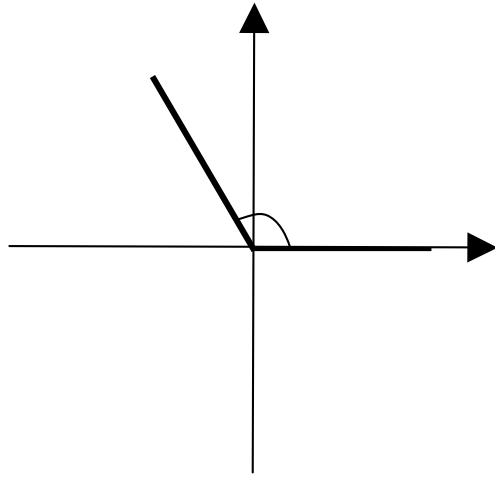
- 3a. Seif stands at the top, T, of a vertical cliff 150m high and sees a fishing boat, F, and a ship, S. B represents a point and the bottom of the cliff directly below T. The angle of depression of the ship is 40 degrees, and the angle of depression of the fishing boat is 55 degrees.



Calculate SB, the distance between the ship and the bottom of the cliff. (2)

- 3b. Calculate SF, the distance between the ship and the fishing boat. Give your answer to the nearest meter. (4)

4. The angle 120 degrees is shown in standard position below.



- Write down three other angles which are coterminal to 120 degrees. (3)
- What is the reference angle for 120 degrees? (1)
- Is the angle -1200 degrees coterminal with 120? Explain your answer (2)