Practical trigonometry - Practice test 2

Name: _____ Date: _____

10 questions | 43 marks | 70 minutes

Use degree mode. Give calculated lengths and angles to one decimal place unless stated otherwise; bearings use three digits to the nearest degree. In triangle ABC, a is opposite A, b opposite B and c opposite C. Show working and units.

A scientific calculator may be used.

1. A courtyard is drawn as an 8 cm by 5 cm rectangle at scale 1:250. [4 marks]

(a) Find the real dimensions in metres. [2 marks]

(b) Find its area and explain why multiplying the drawing area by 250 is wrong. [2 marks]

2. Triangle ABC has $B = 90^\circ$ and $C = 36^\circ$. [4 marks]

(a) Find A and the side opposite C. [2 marks]

(b) Relative to C, name the adjacent leg and hypotenuse. [2 marks]

3. A rectangular reserve is 12 m by 35 m. [4 marks]

(a) Find the diagonal path. [2 marks]

(b) How much shorter is it than walking along two adjacent sides? [2 marks]

4. A straight ramp rises 2.4 m over a horizontal distance of 9 m. [4 marks]

(a) Find its elevation angle. [2 marks]

(b) Find its sloping length. [2 marks]

5. A cable car is 70 m from a ground station along a line of sight at elevation 38°. [4 marks]

(a) Find its vertical rise. [2 marks]

(b) Find horizontal distance and explain why $70\tan 38^\circ$ is not the rise. [2 marks]

6. A boat travels 14 km on bearing 225°. [5 marks]

(a) Find its westward and southward distances. [3 marks]

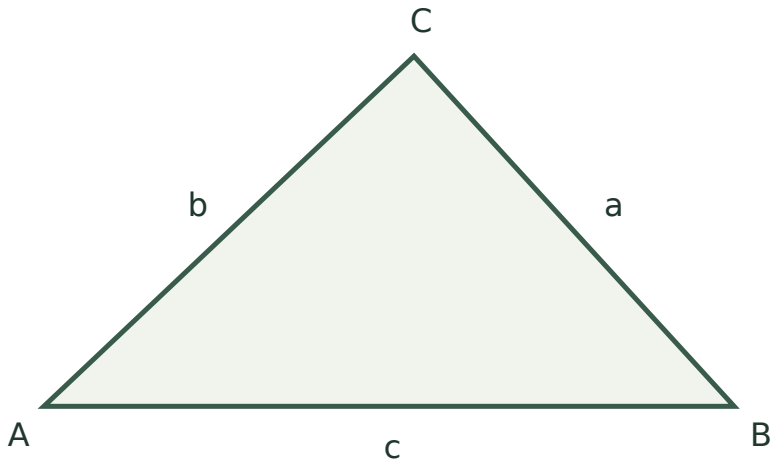
(b) Give its direct return bearing. [2 marks]

7. Triangle sides 7 cm and 12 cm enclose 40°. [4 marks]

(a) Calculate the area. [2 marks]

(b) Give a different included angle that produces the same area with these sides. Explain. [2 marks]

8. A triangle has $A = 35^\circ$, $a = 12\,\text{cm}$ and $b = 8\,\text{cm}$. [4 marks]



Sketch not to scale

(a) Find the acute candidate B. [2 marks]

(b) Decide whether the supplementary candidate fits. [2 marks]

9. A triangular frame has sides 9 cm, 10 cm and 13 cm. [4 marks]

(a) Find its largest angle. [2 marks]

(b) Classify the triangle as acute, right or obtuse. Justify. [2 marks]

10. A triangular field has $AB = 80\,\text{m}$, $AC = 60\,\text{m}$ and $BAC = 65^\circ$. [6 marks]

(a) Find BC. [3 marks]

(b) Find the area and mowing charge at 0.04 dollars per square metre. [3 marks]