Trigonometry: 10 practice questions

Year 10 · Free practice sheet from Tuterly · tuterly.com.au

Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

A right-angled triangle has shorter sides of length 9 cm and 12 cm. Find the length of the hypotenuse.

Question 2

Triangle ABC has a right angle at C. The side lengths are AC = 4 cm, BC = 3 cm and AB = 5 cm.

Write down, as fractions, the values of:

(a) sin A

(b) cos A

(c) tan A

Question 3

Use a calculator to find each value, correct to 4 decimal places.

(a) sin 35°

(b) cos 72°

(c) tan 58°

Question 4

A right-angled triangle has a hypotenuse of 20 cm and an angle of 30°. Find the length of the side opposite the 30° angle.

Section B: Standard (Questions 5-10)

Question 5

In a right-angled triangle, the side adjacent to a 40° angle is 12 m long. Find the length of the side opposite the 40° angle, correct to 2 decimal places.

Question 6

In a right-angled triangle, the side opposite angle θ is 7 cm and the hypotenuse is 10 cm. Find θ, correct to 1 decimal place.

Question 7

A 5 m ladder leans against a vertical wall. The foot of the ladder is on level ground, 1.4 m from the wall.

(a) How high up the wall does the ladder reach?

(b) Find the angle the ladder makes with the ground, correct to 1 decimal place.

Question 8

Priya stands on level ground 50 m from the base of a tree. The angle of elevation from her eyes to the top of the tree is 32°. Her eyes are 1.5 m above the ground.

(a) Find the height of the top of the tree above Priya's eye level, correct to 1 decimal place.

(b) Find the height of the tree, correct to 1 decimal place.

Question 9

From the top of a vertical cliff 80 m above sea level, the angle of depression to a boat is 25°.

How far is the boat from the base of the cliff? Give your answer correct to 1 decimal place.

Question 10

A boat sails 30 km due north from a harbour, then 40 km due east.

(a) How far is the boat from the harbour?

(b) Find the true bearing of the boat from the harbour, correct to the nearest degree.

(c) Find the true bearing of the harbour from the boat, correct to the nearest degree.

Trigonometry: answers

Year 10 · Free practice sheet from Tuterly · tuterly.com.au

Question 1

Answer: 15 cm (√(81 + 144) = √(225))

Question 2

Answer: (a) ⅗ (b) ⅘ (c) ¾

Question 3

Answer: (a) 0.5736 (b) 0.3090 (c) 1.6003

Question 4

Answer: 10 cm (20 sin 30°)

Question 5

Answer: 10.07 m (12 tan 40°)

Question 6

Answer: θ ≈ 44.4° ($\sin^{-1}$ 0.7)

Question 7

Answer: (a) 4.8 m (√(25 - 1.96) = √(23.04)) (b) 73.7° ($\cos^{-1}$ (1.4)/(5))

Question 8

Answer: (a) 31.2 m (50 tan 32° ≈ 31.24) (b) 32.7 m

Question 9

Answer: 171.6 m ((80)/(tan 25°))

Question 10

Answer: (a) 50 km (b) 053°T ($\tan^{-1}$ 40/30 ≈ 53.1°) (c) 233°T