ILLAWARRA TUTORING

This worksheet will help you practise calculating unknown sides in right-angled triangles using trigonometric ratios. Answer all questions and show all your working.

Easy Questions

1. Given a right-angled triangle with an acute angle of 30° and a hypotenuse of 10, calculate the side opposite to the 30° angle.
2. In a right-angled triangle, one acute angle is 22° and the hypotenuse is 13. Find the side adjacent to the 22° angle.
3. Calculate the length of the side adjacent to the 60° angle in a right-angled triangle if the hypotenuse measures 20.
4. In a right-angled triangle with an acute angle of 60°, the side adjacent to this angle is 8. Determine the length of the hypotenuse.
5. A right-angled triangle has an acute angle of 30° and the side opposite this angle is 12. Find the hypotenuse.

Intermediate Questions

6. Draw the following triangle using the provided diagram. A right-angled triangle has an acute angle of 35° and the side opposite that angle is 7. Calculate the hypotenuse.
7. A right-angled triangle has an acute angle of 50° with a hypotenuse measuring 15. Calculate the length of the side adjacent to the 50° angle.
8. In a right-angled triangle, one acute angle is 40° and the side adjacent to this angle is 9. Determine the side opposite to this angle.
9. Given a right-angled triangle with an acute angle of 55° and the side opposite to this angle is 8, calculate the length of the side adjacent to the angle.
10. A triangle has an acute angle of 65° and the side adjacent to the angle measures 12. Find the hypotenuse.
11. In a right-angled triangle, if the hypotenuse is 17 and one acute angle is 20°, determine the side adjacent to the angle.
12. A triangle has an acute angle of 80° and the side opposite to this angle is 9. Calculate the hypotenuse.

13. In a right-angled triangle with an acute angle of 35° and the side adjacent to that angle is 10, compute the side opposite to the angle.

14. A right-angled triangle has an acute angle of 75° and the side opposite is 6. Calculate the side adjacent to this angle.

15. Calculate the side opposite to a 40° angle in a right-angled triangle where the hypotenuse is 25.

16. Given a right-angled triangle with a hypotenuse of 30 and an acute angle of 50°, determine the side adjacent to the angle.

17. In a right-angled triangle, the side adjacent to a 30° angle is 12. Calculate the side opposite to the 30° angle.

18. A triangle has an acute angle of 45° and the side opposite to this angle is 11. Find the hypotenuse.

19. In a right-angled triangle with an acute angle of 55° and a side adjacent of 14, determine the side opposite to the angle.

20. A right triangle has a hypotenuse of 10 and an acute angle of 25°. Calculate the adjacent side.

Hard Questions

21. A ladder of 13 metres leans against a wall forming an angle of 65° with the horizontal. Calculate the distance from the base of the ladder to the wall.

22. A ramp is built making an angle of 30° with the horizontal. If the horizontal distance from the bottom of the ramp to the building is 4 m, determine the length of the ramp.

23. In a right-angled triangle, one acute angle measures 37° and the side opposite to it is 5. Calculate the length of the side adjacent to this angle.

24. A right-angled triangle has an acute angle of 52°. The side opposite that angle is 7. Evaluate both the length of the side adjacent to the angle and the hypotenuse.

25. A flagpole casts a shadow of 4 metres when the sun's angle of elevation is 60°. Calculate the height of the flagpole.

26. A building casts a shadow that is 12 m long when the sun's rays form an angle of 40° with the horizontal. Determine the height of the building.

27. From a point on level ground, the angle of elevation to the top of a tower is 30°, and the distance along the ground to the base of the tower is 15 m. Find the height of the tower.

28. In a right-angled triangle, the hypotenuse is 50 m and one acute angle is 37°. Calculate the lengths of the side opposite and the side adjacent to this angle.

29. In a right-angled triangle, the side adjacent to a 58° angle is 25. Determine both the side opposite to this angle and the hypotenuse.

30. A surveyor measures the angle of elevation to the top of a building as 42° from a point 20 m away from its base. Calculate the height of the building.