

Exact Trig Values, 3D Pythagoras and Angles of Elevation/Depression

Year 11 · Geometry · y11-trigonometry

Name: _____

Date: _____

Class: _____

Score: ____ / ____

Instructions

Answer every question in Practice. Try the Challenge section once Practice is complete. 10 questions in total.

Practice

1. What is the exact value of $\sin(30^\circ)$?

2. A cuboid has dimensions 3cm, 4cm and 12cm. Using 3D Pythagoras, the space diagonal is $\sqrt{3^2 + 4^2 + 12^2}$. What is the length of the space diagonal?

3. The angle measured UPWARD from the horizontal to a point above the observer is called the angle of what?

4. What is the exact value of $\tan(45^\circ)$?

5. In a right-angled triangle you know the opposite and adjacent sides, and need the angle. Which trig ratio uses opposite and adjacent: sin, cos, or tan?

6. $\cos(60^\circ) = 0.5$ is one of the standard exact trig values that should be memorised, not calculated with a decimal approximation each time. What is the exact value of $\cos(60^\circ)$?

7. For a 3D diagonal, add the SQUARES of all three dimensions before square rooting: $\sqrt{a^2 + b^2 + c^2}$. A cuboid has dimensions 2cm, 3cm and 6cm. What is the space diagonal?

8. The angle of DEPRESSION is measured downward from the horizontal to a point below the observer — the opposite of elevation. Looking down from a cliff to a boat, what angle is this called?

Challenge

1. What is the exact value of $\cos(0^\circ)$?

2. What is the exact value of $\sin(0^\circ)$?
