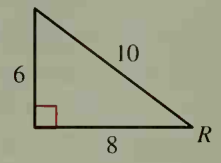
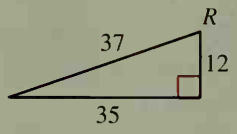
Written Exercises

For each right triangle shown, verify that $\tan R = \frac{\sin R}{\cos R}$.

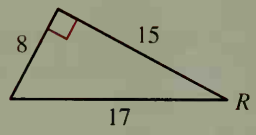
1.



2.

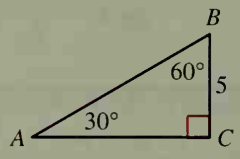


3.



4–6. Use the right triangles in Exercises 1–3 to verify that $(\sin R)^2 + (\cos R)^2 = 1$.

$\triangle ABC$ is a 30°-60°-90° triangle.



7. Find AB and AC.

8. Verify that $\tan 60° = \frac{\sin 60°}{\cos 60°}$.

9. Verify that $(\sin 30°)^2 + (\cos 30°)^2 = 1$.

$\triangle RST$ is an isosceles right triangle with a leg of length 8.

10. Sketch the triangle. Label the length of each side and the measure of each angle.

11. Verify that $\tan 45° = \frac{\sin 45°}{\cos 45°}$.

12. Verify that $(\sin 45°)^2 + (\cos 45°)^2 = 1$.

Use the table of trigonometric ratios on page 311 or a calculator to verify each statement.

13. $(\sin 35°)^2 + (\cos 35°)^2 = 1$

14. $\tan 80° = \frac{\sin 80°}{\cos 80°}$

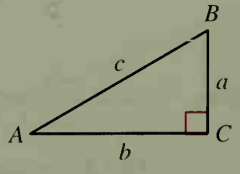
Use the relationships among the trigonometric ratios to find the values of the other two ratios. You may assume that all the trigonometric ratios are positive.

15. $\sin A = \frac{21}{29}$

16. $\cos Y = \frac{1}{3}$

17. $\tan D = \frac{7}{24}$

Use the diagram of $\triangle ABC$ to prove each statement.



18. $\sin A = \cos B$

19. $(\tan A)^2 + 1 = \frac{1}{(\cos A)^2}$