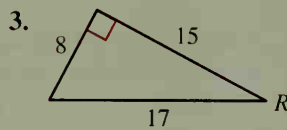
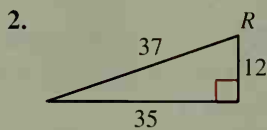
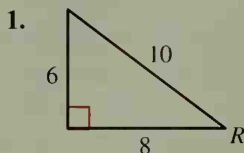


## Written Exercises

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



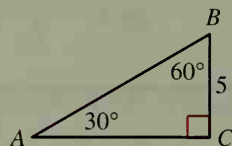
4–6. Use the right triangles in Exercises 1–3 to verify that  $(\sin R)^2 + (\cos R)^2 = 1$ .

$\triangle ABC$  is a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle.

7. Find  $AB$  and  $AC$ .

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

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



$\triangle RST$  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  $\tan 45^\circ = \frac{\sin 45^\circ}{\cos 45^\circ}$ .

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

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

13.  $(\sin 35^\circ)^2 + (\cos 35^\circ)^2 = 1$

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

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

