

PROBLEM SOLVING

EXAMPLE 7

on p. 722
for Exs. 67, 68

- 67. FINANCE** You invest \$225 in a savings account for two years. The account has an annual interest rate that changes from year to year. You can find the average annual interest rate r that the account earned over two years using the formula $r = \sqrt{\frac{V_2}{V_0}} - 1$ where V_0 is the initial investment and V_2 is the amount in the account after two years. At the end of two years, you have \$270 in the account. What was the average annual interest rate (written as a percent) the account earned over two years?

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- 68. DISTANCE TO THE HORIZON** The distance d (in miles) that a person can see to the horizon is given by the formula $d = \sqrt{\frac{3h}{2}}$ where h is the person's eye level (in feet) above the water. To the nearest mile, find the distance that the person shown can see to the horizon.



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- 69. MULTI-STEP PROBLEM** You are making a cube-shaped footrest. You want to cover the footrest with fabric. At a fabric store, you choose fabric that costs \$6 per square yard.
- You have \$30 to spend on fabric. How much fabric can you buy?
 - The edge length s (in yards) of the largest footrest you can cover can be found using the formula $s = \sqrt{\frac{S}{6}}$ where S is the surface area of the footrest (in square yards). Use unit analysis to check the units in the formula.
 - Find the edge length of the largest footrest you can cover to the nearest tenth of a yard.
- 70. MULTIPLE REPRESENTATIONS** The velocity v (in feet per second) of an object that has been dropped can be found using the equation $v = \sqrt{64d}$ where d is the distance the object falls (in feet) before hitting the ground.
- Writing an Equation** Write the equation in simplified form.
 - Drawing a Graph** Graph the equation. For what value of d is the velocity about 16 feet per second?
 - Solving an Equation** Use the equation from part (a) to find the exact value of d when the velocity is 16 feet per second.