57. VOLUME OF THE SUN The radius of the sun is about 695,000,000 meters.
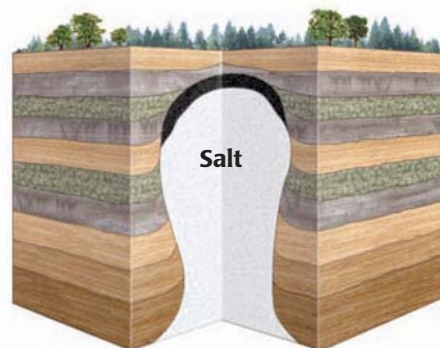
The formula for the volume of a sphere, such as the sun, is $V = \frac{4}{3}\pi r^3$.

Because the order of magnitude of $\frac{4}{3}\pi$ is 1, it does not contribute to the formula in a significant way. So, you can find the order of magnitude of the volume of the sun by cubing its radius. Find the order of magnitude of the volume of the sun.

58. ◆ TAKS REASONING Rock salt can be mined from large deposits of salt called salt domes. A particular salt dome is roughly cylindrical in shape. The order of magnitude of the radius of the salt dome is 10^3 feet. The order of magnitude of the height of the salt dome is about 10 times that of its radius. The formula for the volume of a cylinder is $V = \pi r^2 h$.

Salt

    a. Calculate What is the order of magnitude of the height of the salt dome?

    b. Calculate What is the order of magnitude of the volume of the salt dome?

    c. Explain The order of magnitude of the radius of a salt dome can be 10 times the radius of the salt dome described in this exercise. What effect does multiplying the order of magnitude of the radius of the salt dome by 10 have on the volume of the salt dome? *Explain.*

59. CHALLENGE Your school is conducting a poll that has two parts, one part that has 13 questions and a second part that has 10 questions. Students can answer the questions in either part with "agree" or "disagree." What power of 2 represents the number of ways there are to answer the questions in the first part of the poll? What power of 2 represents the number of ways there are to answer the questions in the second part of the poll? What power of 2 represents the number of ways there are to answer all of the questions on the poll?

MIXED REVIEW FOR TAKS

60. ◆ TAKS PRACTICE Which is always a correct conclusion about the quantities in the function $y = 3x$? *TAKS Obj. 1*

    Ⓐ The variable y is always greater than x.

    Ⓑ When the value of x is negative, the value of y is positive.

    Ⓒ As the value of x decreases, the value of y decreases.

    Ⓓ The variable x is 3 times the value of y.

61. ◆ TAKS PRACTICE A photograph of a surfer on a surfboard is enlarged by a scale factor of 8 to make a poster. If the surfboard in the photograph is 1.5 inches long, how long is the surfboard in the poster? *TAKS Obj. 8*

    Ⓕ 8 in.   **Ⓖ** 12 in.   **Ⓗ** 18 in.   **Ⓙ** 96 in.