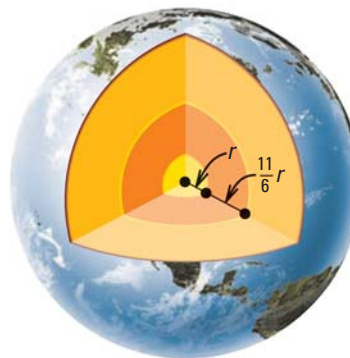


EXAMPLE 5

on p. 332
for Exs. 51–52

51. **TAKS REASONING** A typical cultured black pearl is made by placing a bead with a diameter of 6 millimeters inside an oyster. The resulting pearl has a diameter of about 9 millimeters. *Compare* the volume of the resulting pearl with the volume of the bead.
52. **MULTI-STEP PROBLEM** A can of tennis balls consists of three spheres of radius r stacked vertically inside a cylinder of radius r and height h .
- Write an expression for the total volume of the three tennis balls in terms of r .
 - Write an expression for the volume of the cylinder in terms of r and h .
 - Write an expression for h in terms of r using the fact that the height of the cylinder is the sum of the diameters of the three tennis balls.
 - What fraction of the can's volume is taken up by the tennis balls?
53. **TAKS REASONING** You can think of a penny as a cylinder with a radius of about 9.53 millimeters and a height of about 1.55 millimeters.
- Calculate** Approximate the volume of a penny. Give your answer in cubic meters.
 - Estimate** Approximate the volume of your classroom in cubic meters. *Explain* how you obtained your answer.
 - Interpret** Use your results from parts (a) and (b) to estimate how many pennies it would take to fill your classroom. Do you think your answer is an overestimate or an underestimate? *Explain*.
54. **CHALLENGE** Earth's core is approximately spherical in shape and is divided into a solid inner core (the yellow region in the diagram shown) and a liquid outer core (the dark orange region in the diagram).
- Earth's radius is about 5 times as great as the radius of Earth's inner core. Find the ratio of Earth's total volume to the volume of Earth's inner core.
 - Find the ratio of the volume of Earth's outer core to the volume of Earth's inner core.

**MIXED REVIEW FOR TAKS****TAKS PRACTICE** at classzone.com**REVIEW**

Lesson 4.4;
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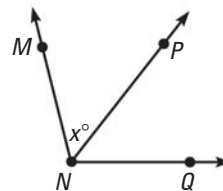
55. **TAKS PRACTICE** What are the zeros of the function $y = 2x^2 + 5x - 12$?
TAKS Obj. 5

- (A) $-\frac{3}{2}, -4$ (B) $-\frac{3}{2}, 4$ (C) $\frac{3}{2}, -4$ (D) $\frac{3}{2}, 4$

REVIEW

Skills Review
Handbook p. 994;
TAKS Workbook

56. **TAKS PRACTICE** In the diagram, \overrightarrow{NP} bisects $\angle MNQ$ and $m\angle MNP$ is x° . Which equation can be used to find y , which represents $m\angle MNQ$?
TAKS Obj. 6



- (F) $y = \frac{x}{2}$ (G) $y = x$
(H) $y = 2x$ (J) $y = 180 - x$