

10.5 Surface Area and Volume of Spheres

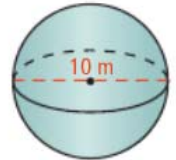
Sphere:

Radius:



Diameter:

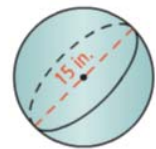
Surface Area of a Sphere



The circumference of a basketball is 29.5 inches. What is the amount of leather needed to make the basketball?



Volume of a Sphere



More Examples:

- 1) Find the surface area and volume in terms of π and rounded to the nearest tenth.

- 2) The surface area of a sphere is $36\pi \text{ cm}^2$. What's the sphere's volume?

The Algebros were playing a quick game of dodgeball when Mr. Kelly got KNOCKED OUT because he was too busy trying to find the volume of one dodgeball. He found the surface area of the dodgeball to be 64π inches before he was knocked out. What is the volume?

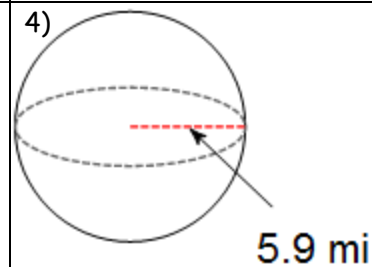
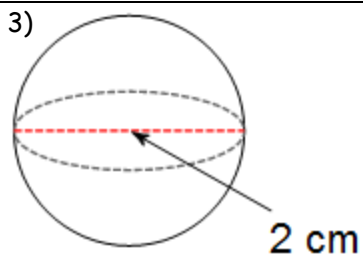
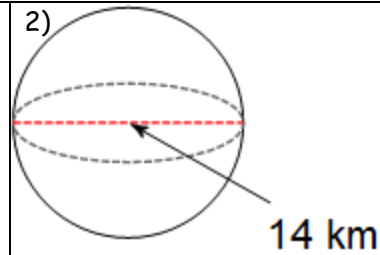
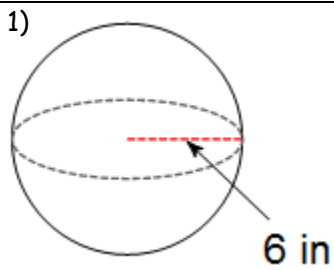
You try....

Find the surface area and volume of the following sphere.

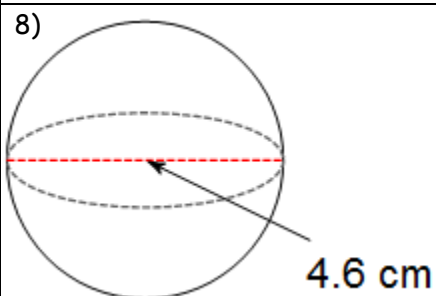
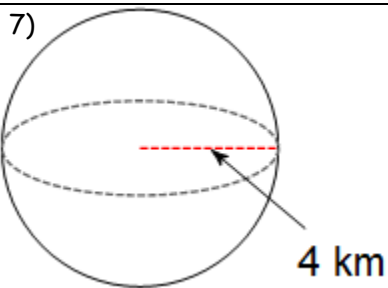
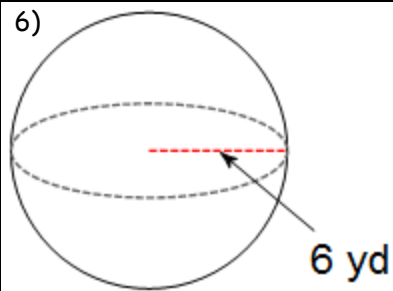
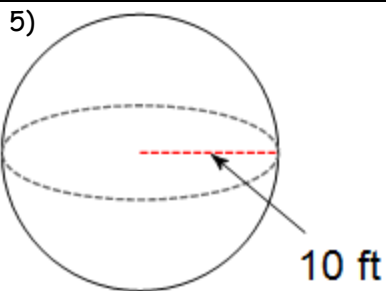
Summary:

10.5 Practice Problems

Directions: Find the surface area of each figure in terms of π and rounded to the nearest tenth.



Directions: Find the volume of each figure in terms of π and rounded to the nearest tenth.



9) The surface area of a sphere is $100\pi \text{ in}^2$. What's the sphere's volume?

10) The surface area of a sphere is $324\pi \text{ in}^2$. What's the sphere's volume?

11) The surface area of a sphere is $49\pi \text{ in}^2$. What's the sphere's volume?

Algebra Review

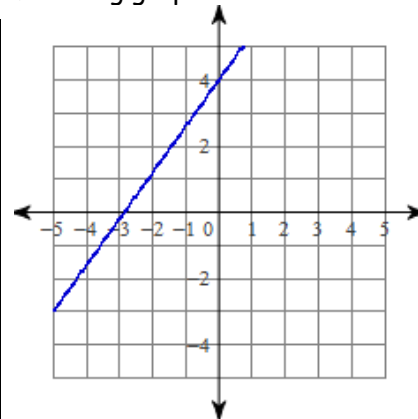
Solve:

1) $19 + 3x > -7(-1 - x)$

Solve:

2) $-12 - 8n \leq -2(4 + 4n)$

Write the equation of the line for the following graph.



Factor Completely:

$$18x^2 + 18x - 8$$

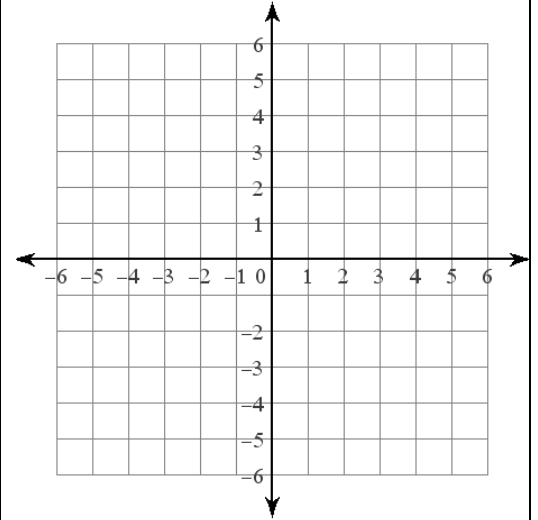
Factor Completely:

$$25n^2 - 9$$

Solve by graphing:

$$y = -x - 3$$

$$y = -7x + 3$$

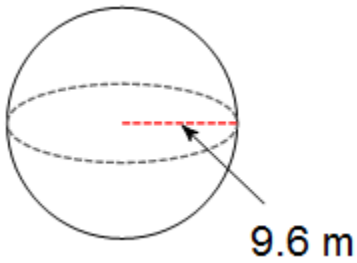


10.5 APPLICATION and EXTENSION

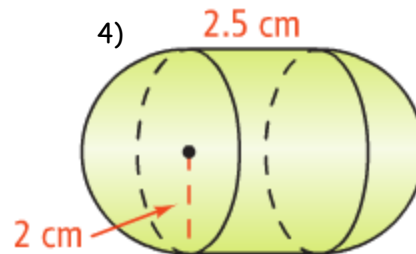
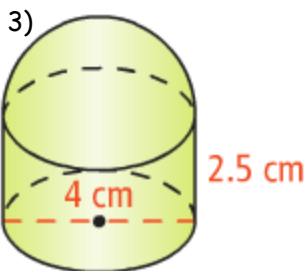
Directions:

1) Find the volume and surface area of the sphere.

2) The surface area of a sphere is $144\pi \text{ in}^2$. What's the sphere's volume?



DIRECTIONS: 3 and 4: Draw the two composite shapes then find the volume.



5) People sell tennis balls by putting three balls into cylindrical can. The three tennis balls are the same size (diameter is 2.675 inches) and fit perfectly inside the can. Mr. Kelly bet Mr. Brust that there is enough room in the can to fit ONE MORE tennis ball into the can. Is there enough volume inside the cylinder for one more ball?



6) Mr. Brust wants to fill his room 4 feet deep with plastic balls and create the BRUST PIT so kids can come in and jump around and have fun instead of learn. He's just not sure how many plastic balls he'll need. He knows his room is 23 feet long and 28 feet wide and that each plastic ball has a radius of 1.75. How many plastic balls will Mr. Brust need?

7) A boys' basketball has a circumference of 29.5 inches. A girls' basketball has a circumference of 28.5 inches. How much more leather is needed to make the boys' basketball? How much more air fills a boys' basketball?