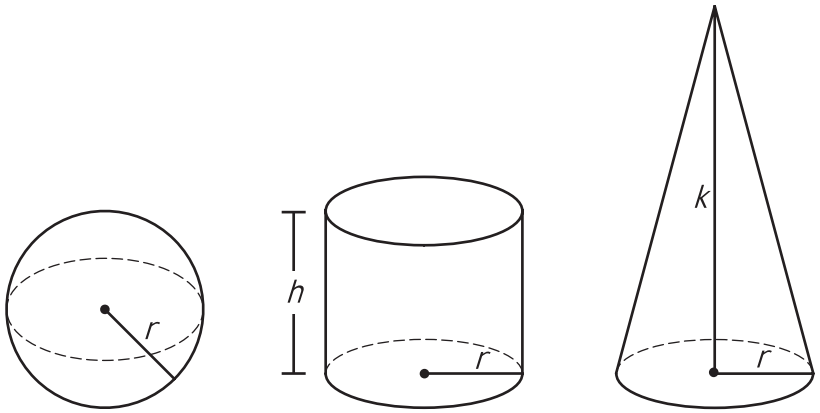
Questions 41 and 42 are open-response questions.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF EACH QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 41 in the space provided in your Student Answer Booklet.

41 Three objects are shown below: a sphere, a right circular cylinder, and a right circular cone.



Sphere **Cylinder** **Cone**

The radius, r, of each of the objects is 10 inches.

a. What is the volume, in cubic inches, of the sphere? Show or explain how you got your answer.

The height, h, of the cylinder is 2 times its radius.

b. What is the volume, in cubic inches, of the cylinder? Show or explain how you got your answer.

The volume of the cone is equal to the volume of the cylinder.

c. What is the value of k, the height in inches of the cone? Show or explain how you got your answer.

The radius of the sphere will be changed so that the volume of the sphere will be equal to the volume of the cylinder.

d. By how many inches would the radius of the sphere have to change for its volume to be equal to the volume of the cylinder? Show or explain how you got your answer.