

15. The volume of a cylinder is given by  $V = \pi r^2 h$ , where  $r$  is the radius and  $h$  is the height. Given that the diameter is equal to the height, show that the volume can be written as

$$V = ah^3.$$

Taking  $\pi = 3.14$ , find the value of  $a$  correct to two places of decimals.

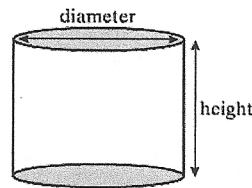
Using this function, calculate the volume of a cylinder with a diameter of 11 cm.

Find the diameter of a cylinder whose volume is  $215.58 \text{ cm}^3$ , correct to one place of decimals.

$$V = 0.79 d^3 \text{ or } V = 0.7h^3$$

$$\text{Diameter} = 11$$

$$V = 0.79(11)^3 = 1051.49 \text{ cm}^3$$



$$2r = h$$

$$r = \frac{h}{2}$$

$$V = \pi \left(\frac{h}{2}\right)^2 h = \frac{\pi}{4} h^3$$

$$\Rightarrow a = \frac{\pi}{4} = 0.79$$

$$V = 0.79 d^3$$

$$/ V = 0.79h^3$$

$$215.58 = 0.79 d^3$$

$$d^3 = 215.58 / 0.79 =$$

$$d = \sqrt[3]{215.58 / 0.79} = 6.5 \text{ cm}$$