

8. The volume, $V(h)$, of a bookcase can be represented by the expression $h^3 - 2h^2 + h$, where h is the height of the bookcase. What are the possible dimensions of the bookcase in terms of h ?

factor then

$$V(h) = h^3 - 2h^2 + h$$

$$V(1) = 1^3 - 2 \cdot 1^2 + 1 = 1 - 2 + 1 = 0$$

$\Rightarrow (h-1)$ is a factor

$$V = h(h^2 - 2h + 1) = h(h-1)^2 = h(h-1)(h-1)$$

& we cannot factor further

$$V = \begin{array}{c} \text{3D box diagram with width } w, \text{ length } l, \text{ and height } h \end{array} = w \times l \times h$$

$$= h^3 - 2h^2 + h$$

equiv. to some factoring.

h is a dimension
✓ 4th answer.