22

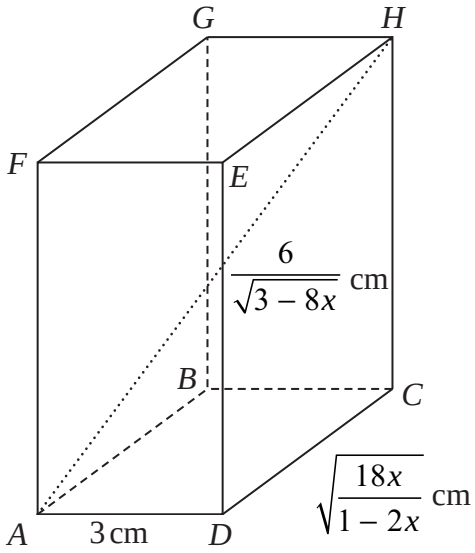

Diagram **NOT** accurately drawn

The diagram shows cuboid $ABCDEFGH$ in which

$AD = 3\,\text{cm}$ $\quad DC = \sqrt{\dfrac{18x}{1-2x}}\,\text{cm}$ $\quad AH = \dfrac{6}{\sqrt{3-8x}}\,\text{cm}$

where $0 < x < \dfrac{3}{8}$

Given that the length of CH is L cm, where $L = \dfrac{k}{\sqrt{(3-8x)(1-2x)}}$ and k is a positive integer,

(a) find the value of k
Show your working clearly.

$k =$ .....

(5)

Given that $x = 0.3$

(b) calculate the volume, in cm^3, of the cuboid.

..... cm^3

(2)

(Total for Question 22 is 7 marks)