

9

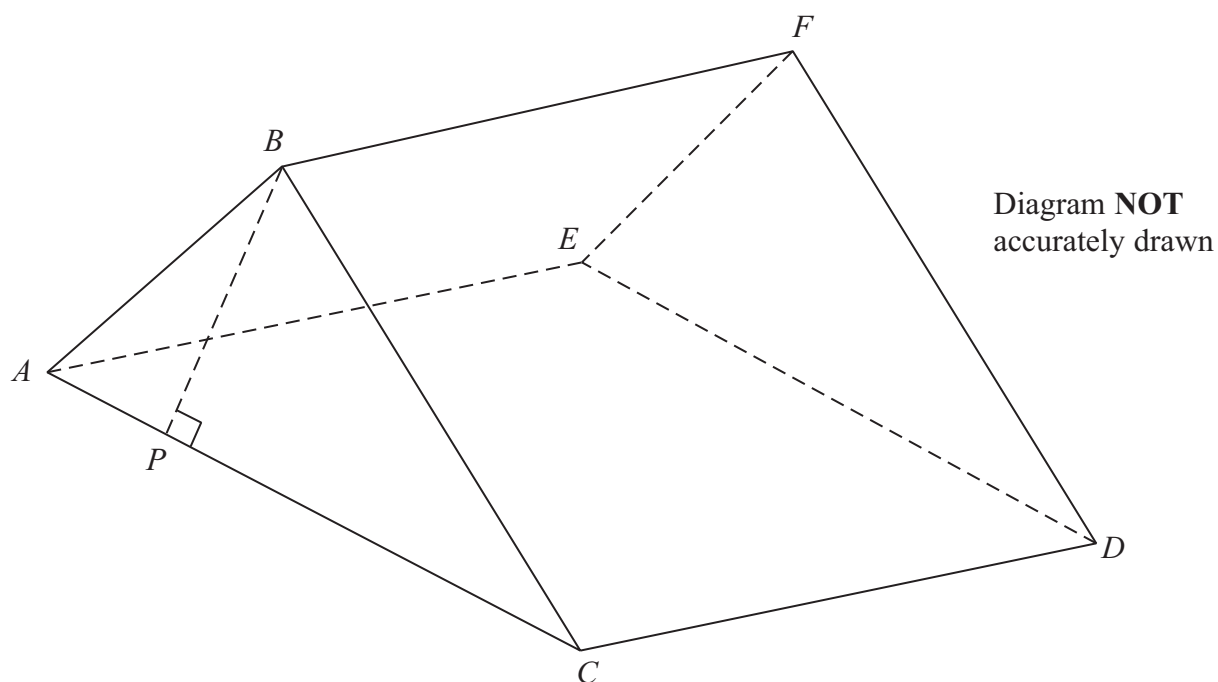


Figure 3

Figure 3 shows a triangular prism  $ABCDEF$ .

$ACDE$  is a rectangle. In triangle  $ABC$ ,  $AC = 12$  cm,  $\angle BAC = 60^\circ$  and  $\angle BCA = 30^\circ$

- (a) Find the exact length of  $BC$ . (3)

The point  $P$  lies on the line  $AC$  and  $\angle BPC = 90^\circ$

- (b) Show that  $BP = 3\sqrt{3}$  cm. (2)

The angle between the plane  $AFC$  and the plane  $ACDE$  is  $25^\circ$

- (c) Find, to 3 significant figures, the length of  $BF$ . (3)

- (d) Find the size of the angle between the line  $BD$  and the plane  $ACDE$ , giving your answer in degrees to 1 decimal place. (4)

- (e) Find, to 3 significant figures, the volume of the prism  $ABCDEF$ . (2)

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**Question 9 continued**





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