10

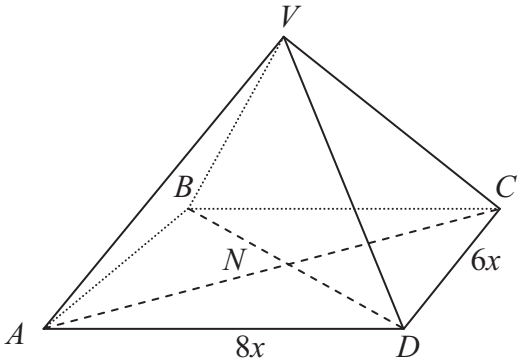

Figure 2

Figure 2 shows the pyramid $VABCD$. The base $ABCD$ is a rectangle with $CD = 6x$ cm and $AD = 8x$ cm. The diagonals of the base intersect at the point N. The edges VA, VB, VC and VD are all of equal length. The angle between VA and the base $ABCD$ is $60°$.

Find, in terms of x,

(a) the height, VN, of the pyramid,

(4)

(b) the length of VA.

(3)

Find, in degrees to the nearest $0.1°$,

(c) the size of the angle between the planes AVB and $ABCD$,

(3)

(d) the size of the angle between the planes BVD and AVC.

(3)

The volume of the pyramid is 1110 cm^3.

(e) Find, to the nearest whole number, the value of x.

(3)

Question 10 continued

Question 10 continued

Question 10 continued

Question 10 continued

(Total for Question 10 is 16 marks)

TOTAL FOR PAPER IS 100 MARKS