



(ii) Show that the normal found in part (b)(i) intersects  $P$  at  $A(3, 1, -1)$ .



(2 marks)

(c) Figure 11 shows the point  $E(3, 0, 11)$  on the normal to  $P$  through  $B(0, 2, 10)$ .

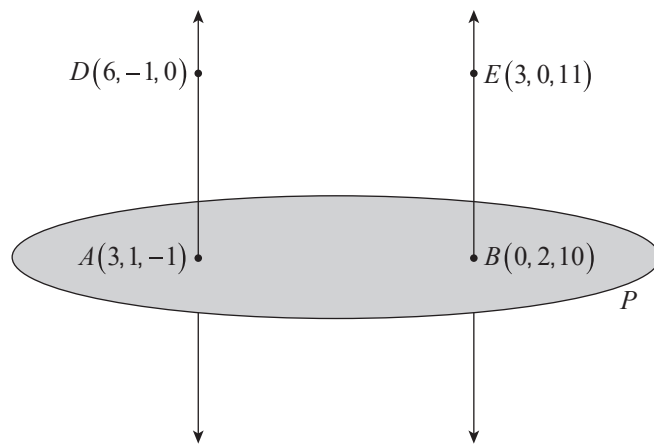


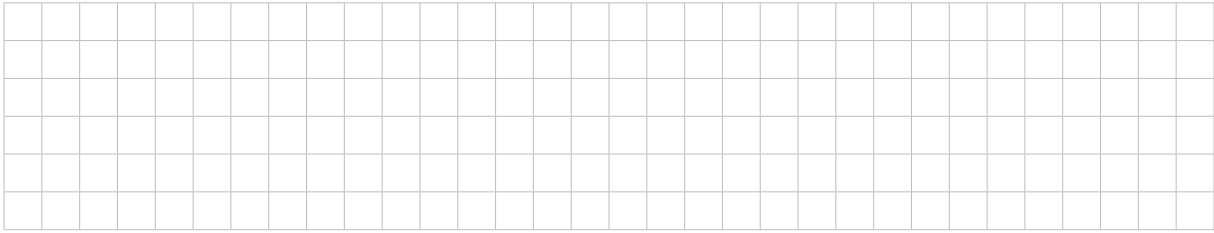
Figure 11

(i) Show that the line through  $D$  and  $E$  is parallel to  $P$ .



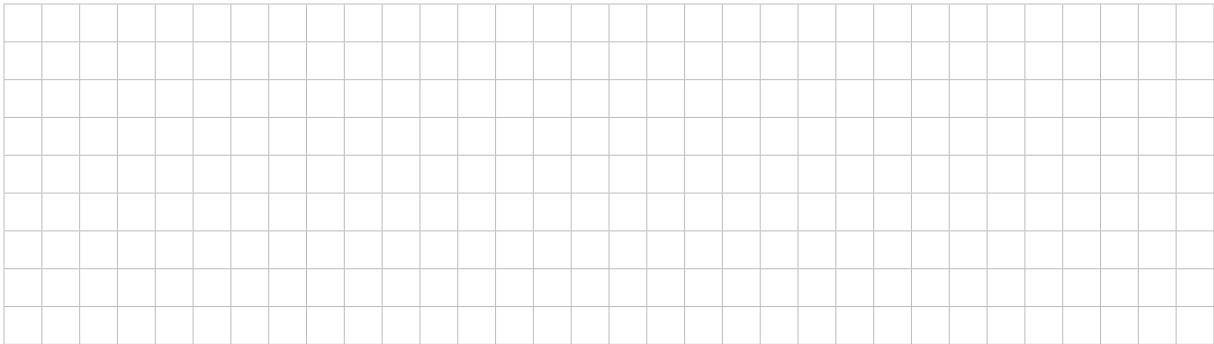
(2 marks)

(ii) Find the distance from this line to  $P$ .



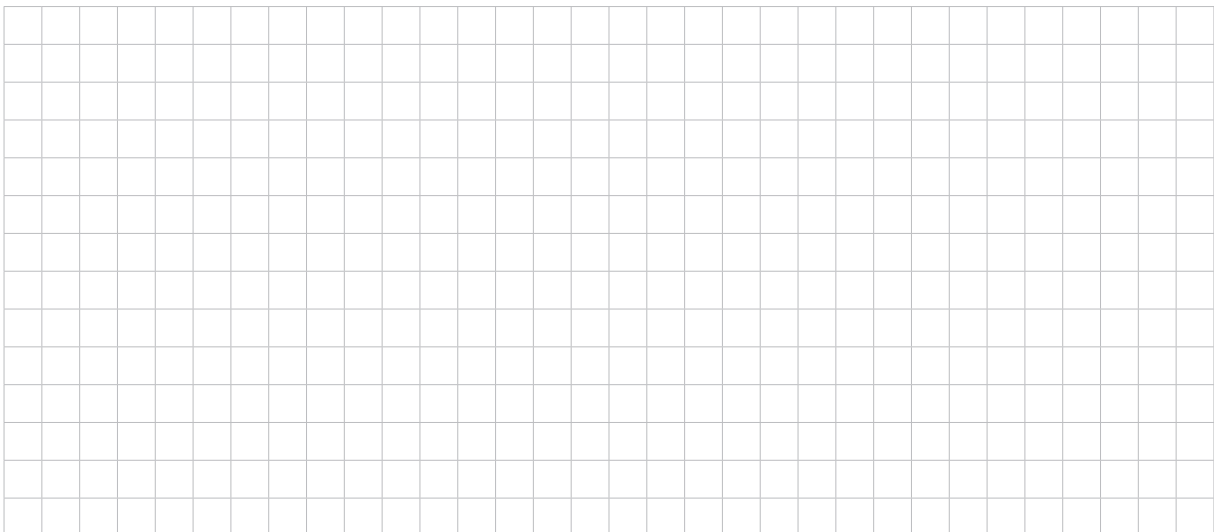
(1 mark)

(d) (i) Show that the point  $F(-3, 2, 5)$  is the same distance from  $P$  as the line that passes through  $D$  and  $E$  is from  $P$ .



(2 marks)

(ii) Is  $F$  on the line through  $D$  and  $E$ ? Explain your answer.



(2 marks)