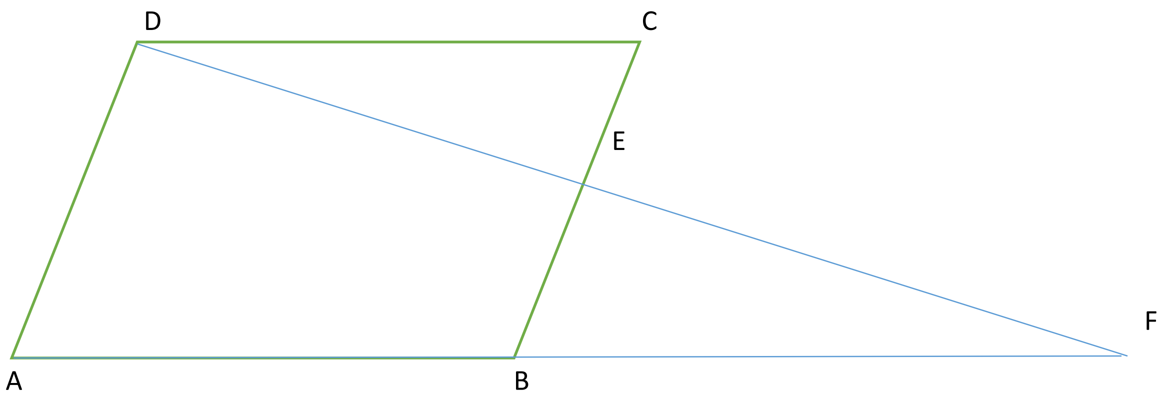
Answer on Question # 32644 – Math – Geometry

ABCD is a parallelogram and e is the midpoint of BC.DE and AB are produced to meet at F.Show that AF=2AB.

Solution.



If we prove that triangles DEC and BFE are equal we show that AF=2AB.

So,

1) As E is the midpoint of BC we have that BE=EC;
2) Angle(DEC)=angle(BEF), as vertical angles;
3) Angle(C)=angle(EBF), as in parallelogram angle(A)=angle(C) and angle(180-A)=angle(B).

From 1)-3) we make a conclusion that triangle(DEC)=triangle(BFE). And BF=DC. As ABCD is a parallelogram we obtain that BF=AB.

Thus, AF=2AB.