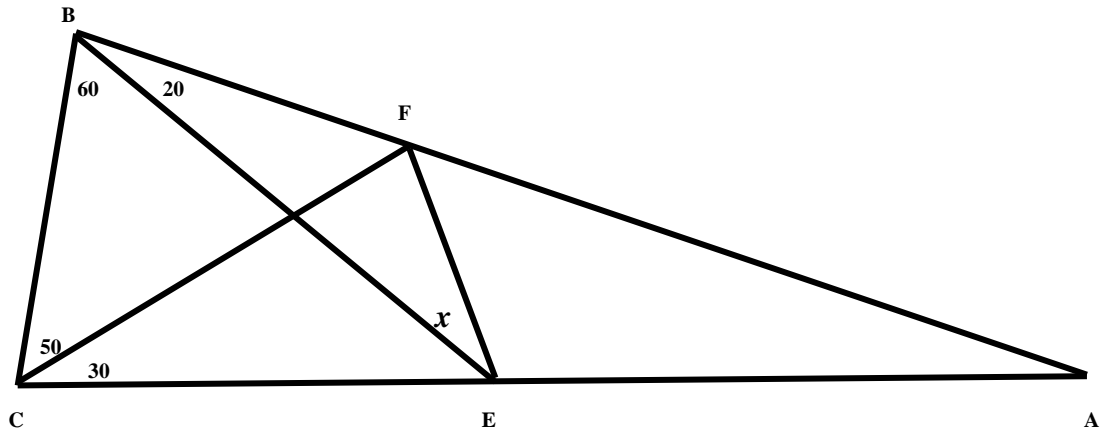
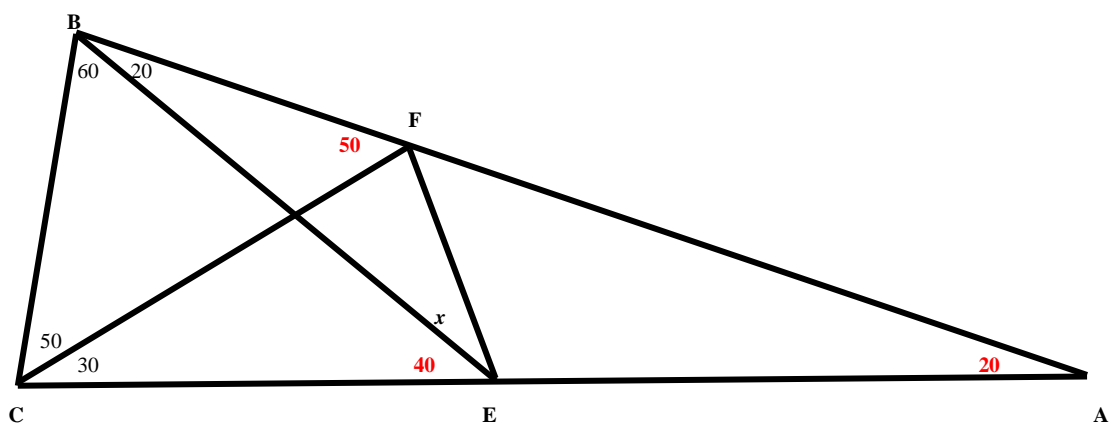


THE WORLD'S HARDEST EASY GEOMETRY QUESTION.

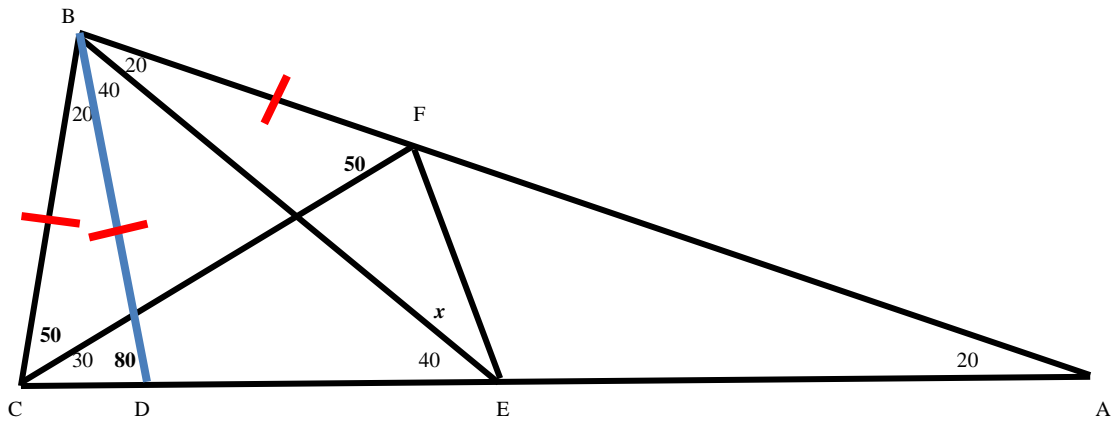
This is the basic question. Find angle x



Firstly we find all the obvious angles:



Construct BD so that $\angle BDC = 80^\circ$

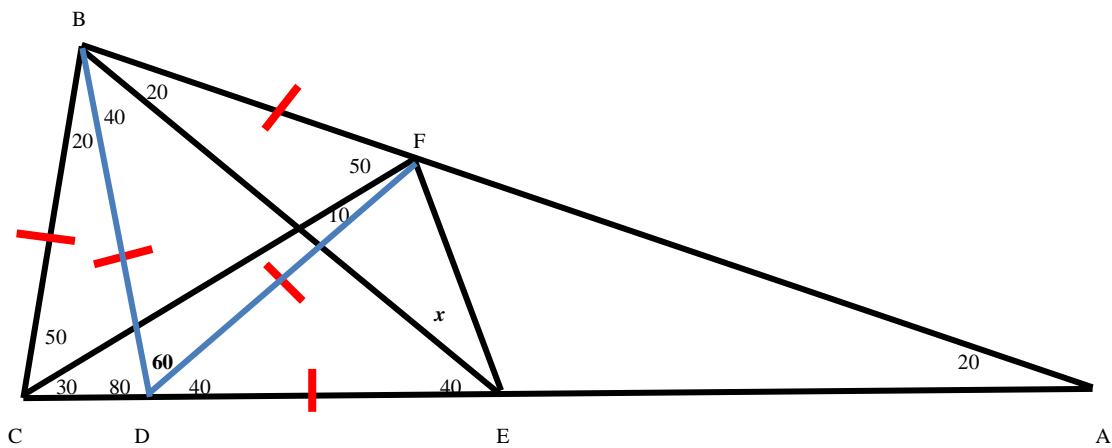


Angles BCD and BDC are both 80° so triangle BCD is isosceles and $BC = BD$

ALSO, since angles BCF and BFC are both 50° then triangle BCF is also isosceles so $BC = BF$

Now we have $BC = BD = BF$

NOW we construct DF



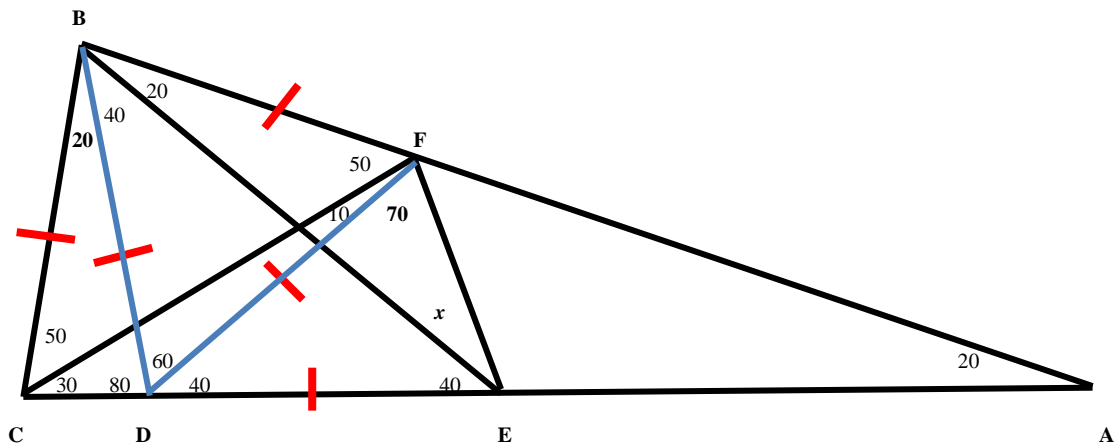
Since $BD = BF$ then triangle BDF is also isosceles and since angle $DBF = 60^\circ$ the “base” angles are also 60° which actually make triangle DBF not only isosceles but EQUILATERAL so **DF also equals $BC = BD = BF$**

NOW consider triangle BDE

Angles DBE and DEB are both 40° so triangle BDE is also isosceles and **$BD = DE$**

Finally consider triangle DEF

Since $DE = DF$ the triangle is isosceles and since angle $D = 40^\circ$ the base angles DFE and DEF are both 70°



But angle $DEF = x + 40 = 70$
So $x = 30^\circ$

ALTERNATIVELY:

If we draw the circle centre D radius $DE = DF = DB$
 we see that the “angle at the centre” $BDF = 60^\circ$ and the “angle at the circumference” BEF is x which must be $\frac{1}{2}$ of $60 = 30^\circ$

