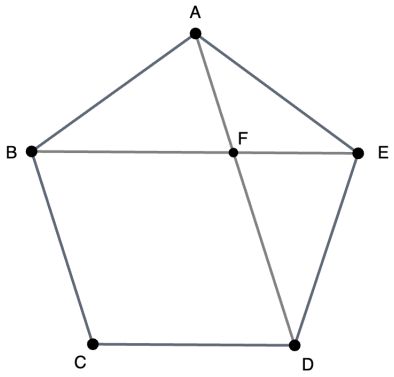
In the figure below, ABCDE is a regular pentagon. Point F is the intersection of segments AD and BE. Find the measure of $\angle EFD$.[1]



[1]Ibaraki Prefecture

Solution

Answer : 72°

Proof: In a regular polygon, each interior angle is 108°. Triangle ABE is an isosceles triangle with $AB = AE$. Therefore, $\angle AEF = (108^\circ - 108^\circ) \div 2 = 36^\circ$. By applying the same principles to triangle AED, we get: $\angle EAF = 36^\circ$. Finally, $\angle \mathbf{EFD} = \angle \mathbf{EAF} + \angle \mathbf{AEF} = \mathbf{36}^\circ + \mathbf{36}^\circ = \mathbf{72}^\circ$.