part-B.

$AC^2 = F(x)$ (given)

2> $F(x) = 2x^2 - 20x + 50 - (10-2x)(x+8) + 2x^2 - 50$

$= 2(x-5)^2 + 2(x-5)(x+8) - 2(x^2 - 5^2)$

$= 2(x-5)^2 + 2(x-5)(x+8) - 2(x-5)(x+5)$

$= (x-5)[2(x-5) + 2(x+8) - 2(x+5)]$.

$F(x) = 2(x-5)(3x+8)$

1> $E(x) = (2x-1)^2 - (x+4)^2$

$= [(2x-1) - (x+4)][(2x-1) + (x+4)]$

$E(x) = (x-5)(3x+3) = 3(x-5)(x+1)$

3> $E(x) = F(x)$

$(x-5)(3x+3) = 2(x-5)(3x+8)$

$(x-5)(3x+3) - 2(x-5)(3x+8) = 0$

$(x-5)[3x+3-2(3x+8)] = 0$

$(x-5)(-3x-13) = 0$

$x = 5$ or $x = \frac{-13}{3}$ .which is rejected
accepted. since $x > 2$.

4> If [AB] & (d) are two tangents issued from A to (C)
then, A is equidistant from B & C (pt of tangencies)
(Tangent theorem: Exterior pt from which two tangents are issued remains equidistant from pts of tangencies)

So, $AB = AC$. (Squaring both sides)

then, $AB^2 = AC^2$

Then, $E(x) = F(x)$ (given)

So, $x = 5$ or $x = \frac{-13}{3}$ (rejected)
accepted