but [OP] is a radius (given)
thus, (EP) is tangent to (C) at P. (tangent theorem: tangent & radius are perp. at pt of tangency)

Part B:

1) $EP = 9ab - 15b + 3a - 5$
$= 3a(3b+1) - 5(3b+1)$
$EP = (3a-5)(3b+1)$ cm

2) * $EQ = (b+1)^2 + (2b+1)(3b-1) + (b+1)(2b+1)$
$= b^2 + 2b + 1 + 6b^2 - 2b + 3b - 1 + 2b^2 + b + 2b + 1$
$EQ = 9b^2 + 6b + 1$

* $EQ = 9b^2 + 6b + 1$
$= (3b)^2 + 2(3b)(1) + 1^2$
$EQ = (3b+1)^2$

3) a- E is the pt. of intersection of the 2 tangents [EP] & [EQ] (given)
then, E is equidistant from P & Q (tangent theorem: pt. of intersection of the 2 tangents is equidistant from pts. of tangencies).
so, $EP = EQ$

b- $EP = EQ$
$[3(2) - 5][3b+1] = (3b+1)^2$
$(6-5)(3b+1) = (3b+1)^2$
$(3b+1) - (3b+1)^2 = 0$
$(3b+1)[1 - 3b - 1) = 0$
$(3b+1)(-3b) = 0$
$3b+1 = 0$ or $-3b = 0$
$b = -\frac{1}{3}$ or $b = 0 \rightarrow$ accepted.
$b = -\frac{1}{3}$ is rejected since it vanishes EQ
that is geometrically this means that E will be a pt of tangency