So, $FD = CF - CD$

$= \frac{25}{4} - 4$

$\boxed{FD = \frac{9}{4}\text{ cm}}$

3/4 pt

5). In $\triangle$s OFC & AEC we have:

$\left.\begin{matrix}(OF) \perp (AB) \\ (AE) \perp (AB)\end{matrix}\right\}$ (given)

2 pt

So $(OF) // (AE)$ (two st. lines $\perp$ to the same st. line are parallel)

So, Use Thales' property

C, F & E are collinear

C, O & A are collinear

Then, $\frac{FE}{FC} = \frac{OA}{OC}$.

$\frac{FE}{\frac{25}{4}} = \frac{3}{5}$

$\boxed{FE = \frac{15}{4}\text{ cm}}$.

6). $(EA) \perp (AB)$ at A (given)

Then E is the pt. of intersection of the two tangents (EA) & (ED) to (C) at A & D resp. &

Thus, (EO) is the bisector of $\hat{AED}$ (Tangent Theorem: St. line joining center & pt. of intersection of tangents is bisector of exterior angle formed by two tangents)

3/4 pt