Use Thales property: (If a st. line is drawn parallel to a side of a △ then it cuts other sides proportionally)

Thales ratios:

$\frac{AD}{AB} = \frac{AO}{AE} = \frac{OD}{BE}$

① ② ③

Using ratios ① & ②

$\frac{AD}{AB} = \frac{AO}{EA}$.

Thus, $\frac{AD}{AB} = \frac{3}{5}$

6)a) (C) is a circle of diameter [AF] and center G (given)
So, G is the midpt of [FA]
& B is " " of [EF] (proved)
Thus, (BG) is parallel to (EA) (midpt theorem in any △).

b) (BG) // (AE) (proved)
but A & E are on x-axis (proved.)
hence (BG) // x-axis
Then (BG): $y = cst$.
but B belongs to (BG).
Thus, (BG): $y = 2$.

3rd exercise:

1) Done ✓

2) △AOB is right isosceles at O (given).
So, OA = OB (legs of iso. △)
(C) is a circle of center O & radius [OA] (given)
Thus, B belongs to (C).