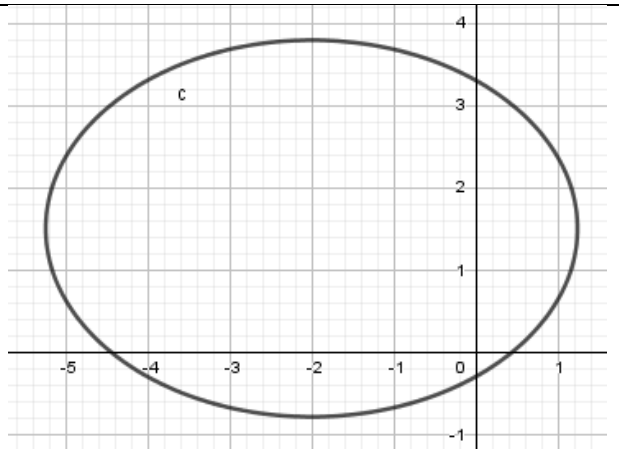Pick 2 questions from both practices (2 from practice 1 and 2 from practice 2)
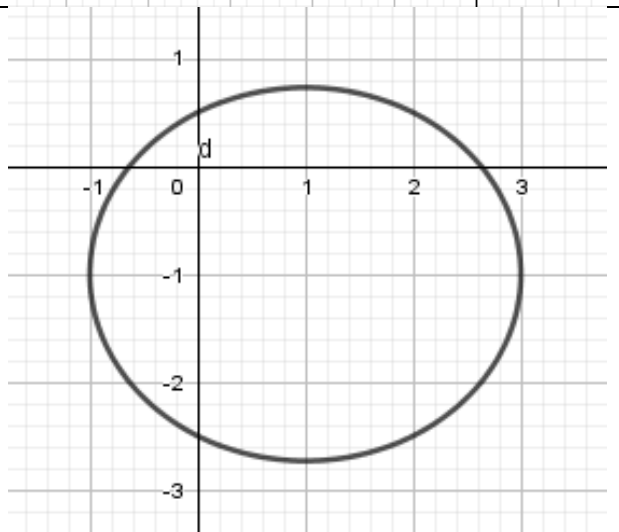
Practice 1:

For each general form below,
(a) write its standard form

(b) find the coordinates of foci, center, vertices and co-vertices

(c) determine the lines where the major and minor axes lie on.
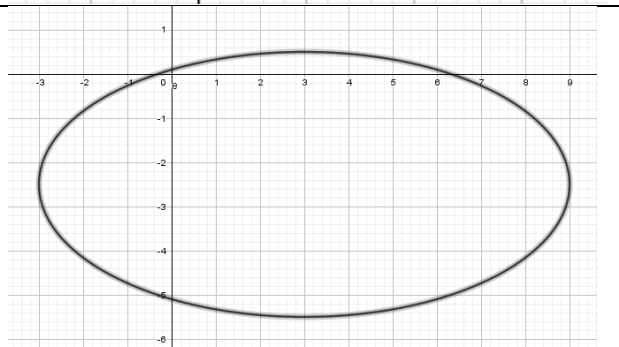
(d) graph the ellipse represented by the general form
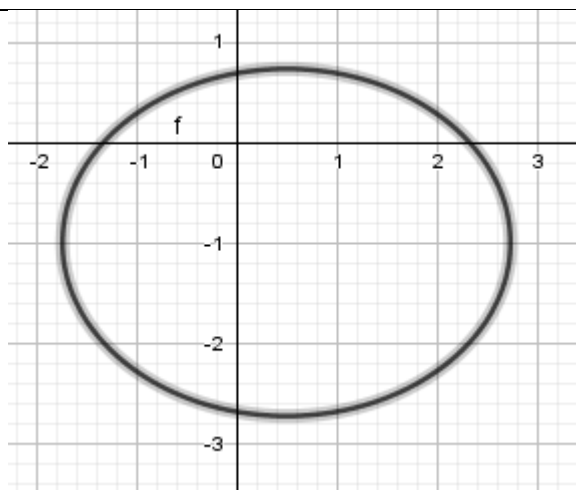
1. $x^2 + 2y^2 + 4x - 6y = 2$	
2. $3x^2 + 4y^2 - 6x + 8y = 5$	
3. $x^2 + 4y^2 - 6x + 20y - 2 = 0$	

4. $12x^2 + 20y^2 - 12x + 40y - 37 = 0$	

Practice 2: Find the standard form of the ellipse based on the given characteristics.

5. the coordinates of the foci: $(-2,-2),(-2,-4)$; the length of the major axis is 6.	$\dfrac{(x+2)^2}{8} + \dfrac{(y+3)^2}{9} = 1$
6. the coordinates of the center are $(4,3)$, the coordinates of one focus are (7,3); the length of the major axis is twice as long as the minor axis	$\dfrac{(x-4)^2}{12} + \dfrac{(y-3)^2}{3} = 1$
7. the coordinates of the foci are $(\pm\sqrt{5},0)$; the ellipse passes through $(1, \dfrac{4\sqrt{2}}{3})$	$\dfrac{x^2}{45} + \dfrac{y^2}{40} = 1$
8. the coordinates of the foci are (2,6) and (2, -2); the ellipse passes through $\left(4, 2 + \dfrac{12}{\sqrt{5}}\right)$	$\dfrac{(x-2)^2}{20} + \dfrac{(y-2)^2}{36} = 1$