This review contains some post Miderm III topics.

1. Consider the following power series.

$$\sum_{n=1}^{\infty} n!(x-2)^n,$$

$$\sum_{n=1}^{\infty} (\frac{1}{2})^n (x-2)^n,$$

$$\sum_{n=1}^{\infty} \frac{1}{n}(x-2)^n.$$

For each of these, answer the following.
    a) What value of x is this power series centered at?
    b) What is the radius of convergence?
    c) What is the interval of convergence (for one of the power series, you'll have to test endpoints)?

2. Write taylor series for each of the following.
    a) $f(x) = \sin(2x)$ around $x = 0$
    b) $g(x) = \frac{3}{2-x}$ around $x = 0$(Hint: Begin by writing $g(x) = \frac{3}{2}\frac{1}{1-(\frac{x}{2})}$)
    c) $h(x) = x^2 e^x$ around $x = 0$
    d) $k(x) = \sin(x)\cos(x)$ around $x = 0$ Compare your answer with a) when finished.
    e) $F(x) = e^x$ around $x = 1$

3. What curves do each of the following describe? Sketch a graph.
    a) $\frac{x^2}{9} + \frac{y^2}{16} = 1$
    b) $\frac{x^2}{4} - \frac{y^2}{9} = 1$
    c) $y = (x-2)^2 - 1$

4. Consider the following parametric equations:

$$x = \cos t, y = \sin t.$$

    a) When $t = 0$, what is (x, y).
    b) When $t = \frac{\pi}{2}$, what is (x, y).
    c) If these equations desribe the motion of an object over time, what is the object doing?