Math 2320 - Final Exam Review

The final exam will include topics from Test 1 and Test 2. For example there will be an integral of each type we have learned. The only additional topics not on Test 1 or Test 2 are below.

1 Parametric Equations

1. Find the parametric equation for the following equations given in rectangular coordinates.

   (a) $y = x^2$

   (b) $y = 3x - 1$

   (c) $y^2 + y = 2x + 2$

2. Find equation in rectangular coordinates for the following equations given in the parametrically.

   (a) $x = 3t$ and $y = 2t - 1$

   (b) $x = 3t$ and $y = 2t^2 - 1$

   (c) $x = \cos(t)$ and $y = 3\sin(t)$

3. Graph the following parametric equations

   (a) $x = 3t$ and $y = 2t - 1$

   (b) $x = 3t$ and $y = 2t^2 - 1$

   (c) $x = \cos(t)$ and $y = 3\sin(t)$

   (d) $x = t\cos(t)$ and $y = t\sin(t)$

4. For the following find the eqaution of the tangent line at the given point.

   (a) $x = 3t$ and $y = 2t - 1$ at $P = (6, 3)$

   (b) $x = 3t$ and $y = 2t^2 - 1$ at $t = 1$

   (c) $x = \cos(t)$ and $y = 3\sin(t)$ at $t = \pi/4$

   (d) $x = t\cos(\pi t)$ and $y = t\sin(\pi t)$ at $t = 1$

2 Polar Coordinates

5. Graph the following parametric equations.

   (a) $r = 3$

   (b) $r = 4\sin(\theta)$

   (c) $r = \sin(2\theta)$

   (d) $r = 1 + 2\sin(\theta)$

6. For the folowing find the equation of the tangent line at the given point.

   (a) $r = 3$ at $P = (x_0, y_0) = (\frac{3}{\sqrt{2}}, \frac{-3}{\sqrt{2}})$

   (b) $r = 4\sin(\theta)$ at $\theta = \pi/4$

   (c) $r = \sin(2\theta)$ at $\theta = \pi/2$

   (d) $r = 1 + 2\sin(\theta)$ at $\theta = \pi/3$

3 Conic Sections

7. Graph the given conic sections.

   (a) $x^2 + \frac{y^2}{4} = 1$

   (b) $x^2 - \frac{y^2}{4} = 1$

   (c) $x + \frac{y^2}{4} = 1$

   (d) $x^2 + 4y^2 = 1$

   (e) $(x-1)^2 - \frac{y^2}{4} = 1$