

MA 2320: Quiz 7

Name: _____

1. Compute the following integrals:

(a) $\int \sin^2(3x) dx$

(b) $\int \frac{1}{x\sqrt{1+x^2}} dx$

(c) $\int \frac{2x^2 - 1}{x^3 - x^2} dx$

1 Parametric Equations

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

(a) $y = x^2$

(b) $y = 3x - 1$

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

3. 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 $y = 3\sin(t)$

4. 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 $y = t \sin(t)$

5. For the following find the equation 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 $t = 1$