MAT232H S22 - TT2 Solutions - Q2

Version 1

$$r = 2 + 2\cos\theta$$

$$x = r\cos\theta$$
$$= (2+2\cos\theta)\cos\theta$$

$$y = r\sin\theta$$
$$= (2+2\cos\theta)\sin\theta$$

$$\frac{dx}{d\theta} = -2\sin\theta - 4\cos\theta\sin\theta$$

$$\frac{dy}{d\theta} = 2\cos\theta + 2\cos^2\theta - 2\sin^2\theta$$