

Math 32 Groupwork 38

[1] Convert the following rectangular equations to polar.

Your final answer should be in the form $r = f(\theta)$ or $r^n = f(\theta)$ where n is a positive integer.

[a] $3y = 2x - x^2$

[b] $3y^2 + 4xy - 3x^2 = 1$

[2] Convert the following polar equations to rectangular.

Your final answer should have no fractions anywhere, no radicals and no negative exponents.

Use the process in the Polar Equation Conversion handout.

[a] $r = 2 - 3\cos\theta$

[b] $r = 1 + \sec\theta$

[c] $r^2 = 1 - \cos 2\theta$

Math 32 Groupwork 38 Answers

[1] [a] $r = 2 \sec \theta - 3 \sec \theta \tan \theta$

[b] $r^2 = \frac{1}{2 \sin 2\theta - 3 \cos 2\theta}$

[2] [a] $(x^2 + y^2 + 3x)^2 = 4(x^2 + y^2)$

[b] $(x^2 + y^2)(x - 1)^2 = x^2$

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