

$$\begin{aligned}
 x &= r \cos \theta & \cos \theta &= \frac{x}{r} \\
 y &= r \sin \theta & \sin \theta &= \frac{y}{r} \\
 \tan \theta &= \frac{y}{x} \\
 r^2 &= x^2 + y^2 \\
 r &= \sqrt{x^2 + y^2}
 \end{aligned}$$

$$16. \quad x^2 + y^2 = 2x - 3y$$

$$r^2 = 2r \cos \theta - 3r \sin \theta$$

$$r = 2 \cos \theta - 3 \sin \theta$$

$$17. \quad 5xy^2 = 3$$

$$5(r \cos \theta)(r \sin \theta)^2 = 3$$

$$5r \cos \theta \cdot r^2 \sin^2 \theta = 3$$

$$5r^3 \cos \theta \sin^2 \theta = 3$$

$$18. \quad r = \cos \theta - 2$$

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

$$r^2 = r \cos \theta - 2r$$

$$x^2 + y^2 = x - 2\sqrt{x^2 + y^2}$$

$$19. \quad r = 7$$

$$\sqrt{x^2 + y^2} = 7$$

$$x^2 + y^2 = 49$$

$$20. \quad \theta = \frac{\pi}{4}$$

$$\tan \theta = \tan \frac{\pi}{4}$$

$$\frac{y}{x} = 1$$

$$y = x$$

$$21. \quad r = \frac{5}{5 + \sin \theta}$$

$$r(5 + \sin \theta) = \cancel{(5 + \sin \theta)} \left(\frac{5}{\cancel{5 + \sin \theta}} \right)$$

$$5r + r \sin \theta = 5$$

$$5\sqrt{x^2 + y^2} + y = 5$$