

10.3.52 Show that the curve $r = 2 - \csc \theta$ (a conchoid) has the line $y = -1$ as a horizontal asymptote by showing that $\lim_{r \rightarrow \pm\infty} y = -1$. Use this fact to help sketch the conchoid.

10.3.54 Sketch the curve $(x^2 + y^2)^3 = 4x^2y^2$.

10.3.58 Show that the curves $r = a \sin \theta$ and $r = a \cos \theta$ intersect at right angles.

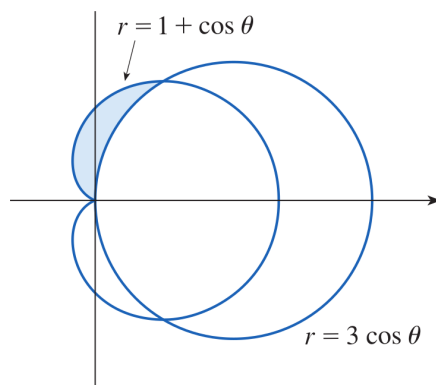
10.4.10 Sketch the curve and find the area that it encloses.

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

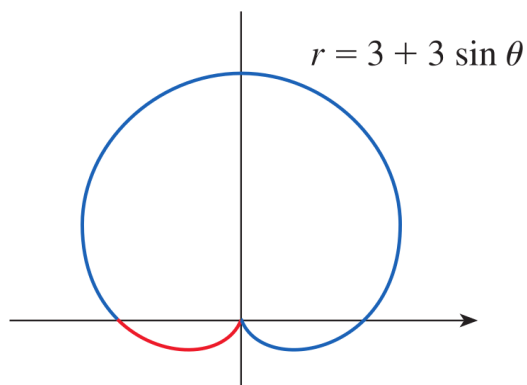
10.4.28 Find the area of the region that lies inside the first curve and outside the second curve.

$$r = 3 \sin \theta, \quad r = 2 - \sin \theta$$

10.4.45 Find the area of the shaded region.



10.4.53 Find the exact length of the portion of the curves shown in blue.



10.4.68 Find the slope of the tangent line to the given polar curve at the point specified by the value of θ .

$$r = 1 + 2 \cos \theta, \theta = \pi/3$$