

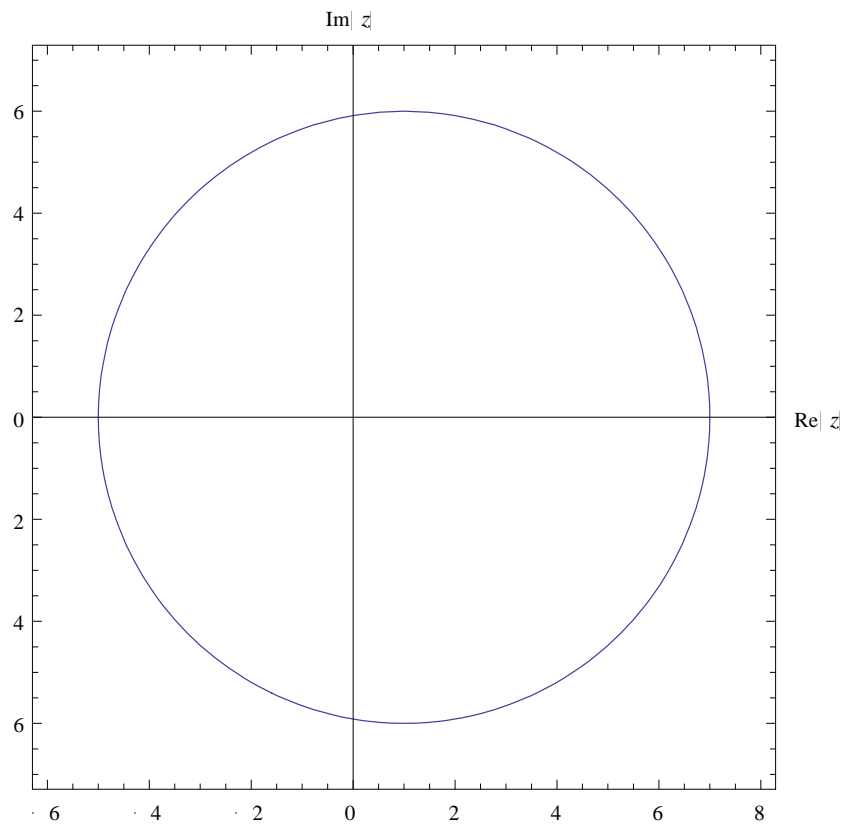
Answer on Question#57150 - Physics - Other

Find locus of points in plane satisfying given conditions.

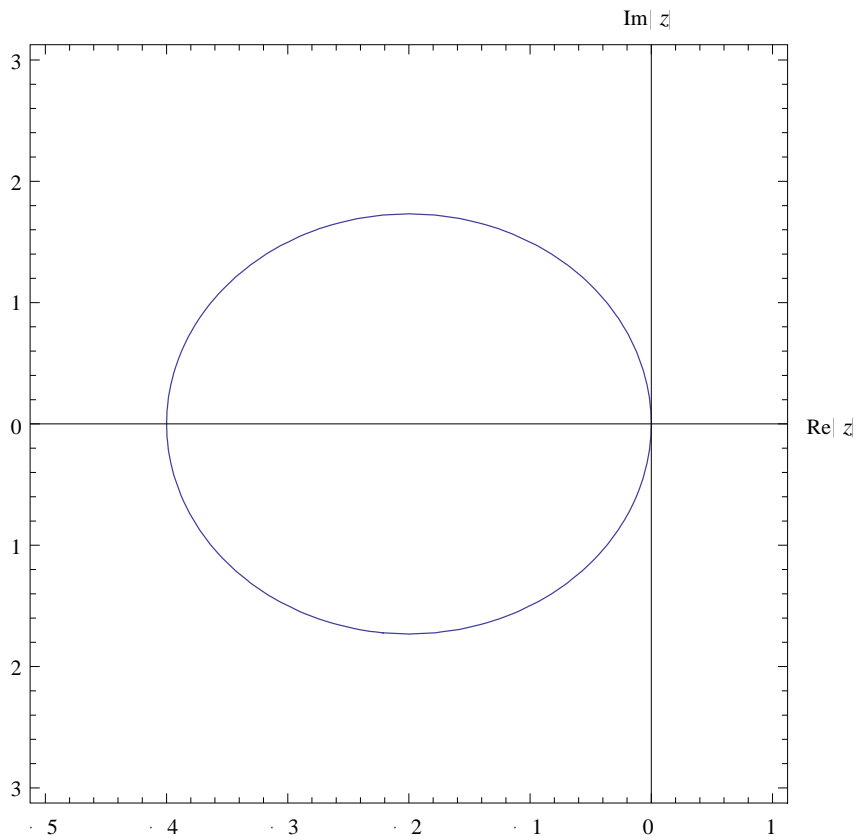
- (i)  $|z - 1| = 6$
- (ii)  $|z + 3| + |z + 1| = 4$
- (iii)  $\text{Arg } z = \pi/3$
- (iv)  $\text{Arg}(z - 1) = -3\pi/4$

Solution:

- (i) Circle of radius 6 centered at point (1,0):



- (ii) Ellipse with foci at  $(-3,0)$  and  $(-1,0)$

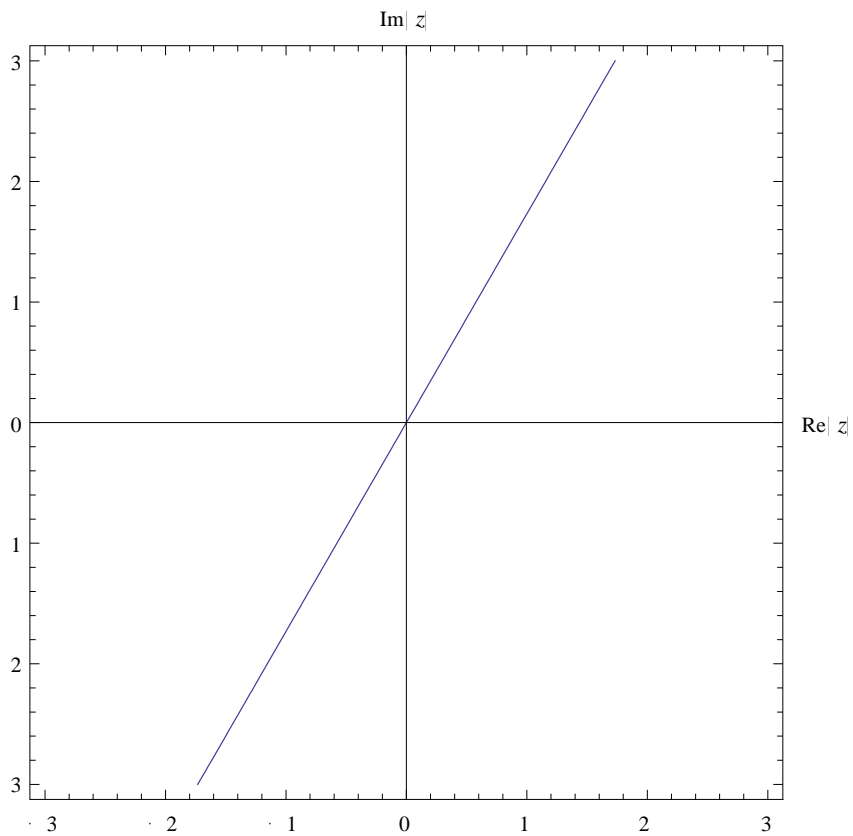


(iii) The line of the form

$$y = kx,$$

Where  $k = \tan \pi/3 = \sqrt{3}$ ,  $x = \text{Re}(z)$ ,  $y = \text{Im}(z)$ .

$$y = \sqrt{3}x$$



(iv) The line of the form

$$y = k(x - 1),$$

Where  $k = \tan -3\pi/4 = 1/\sqrt{2}$ ,  $x = \text{Re}(z)$ ,  $y = \text{Im}(z)$ .

$$y = \frac{x - 1}{\sqrt{2}}$$

