

Find the polar coordinates of  $(-3, -4)$  for  $r > 0$ . Round to the nearest tenth when necessary.

a. none of these

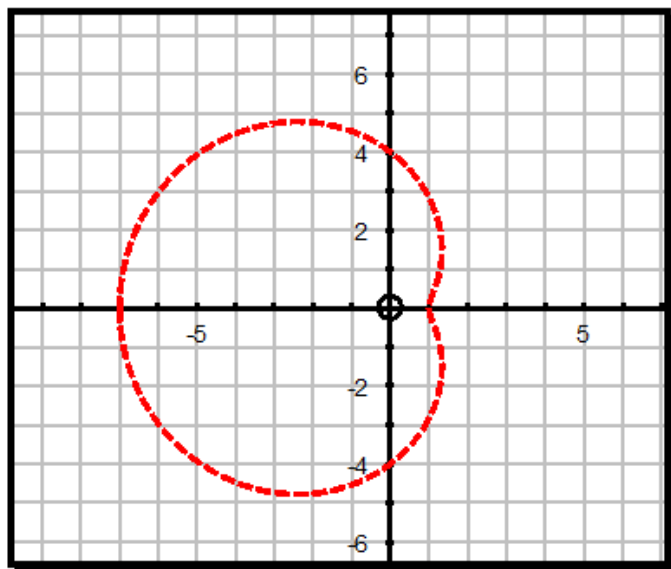
b.  $(-5, 233.1^\circ)$

c.  $(5, 306.9^\circ)$

d.  $(5, 233.1^\circ)$

Graph:  $r = -4 - 3 \cos \theta$

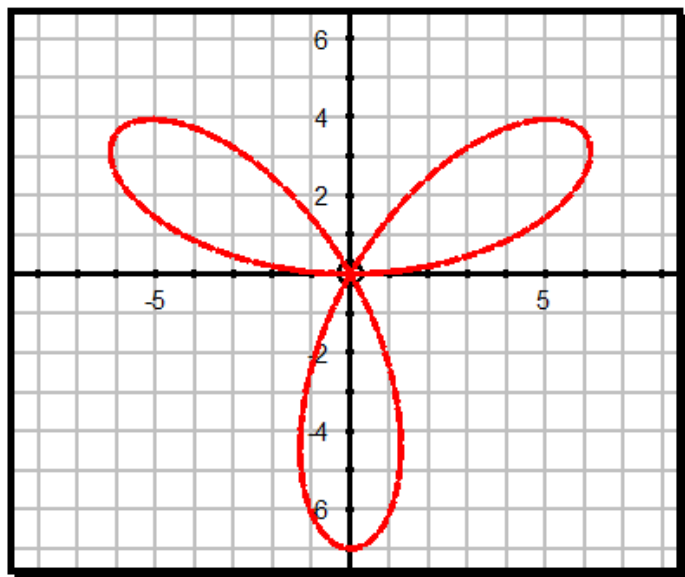
a.



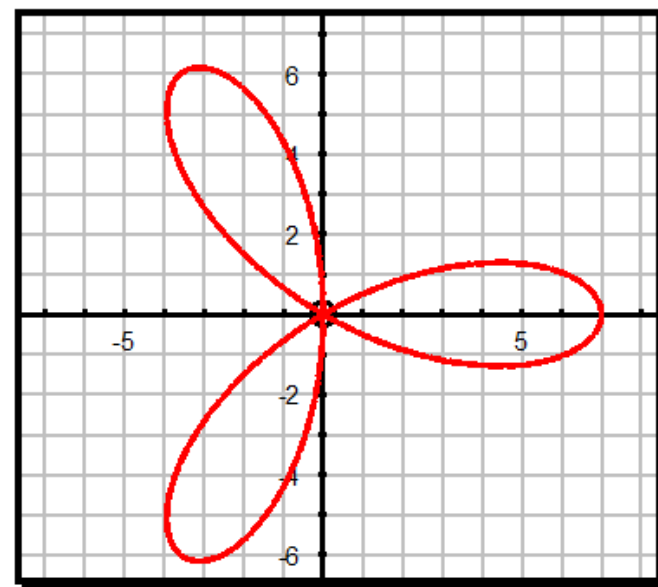
b.

none of these

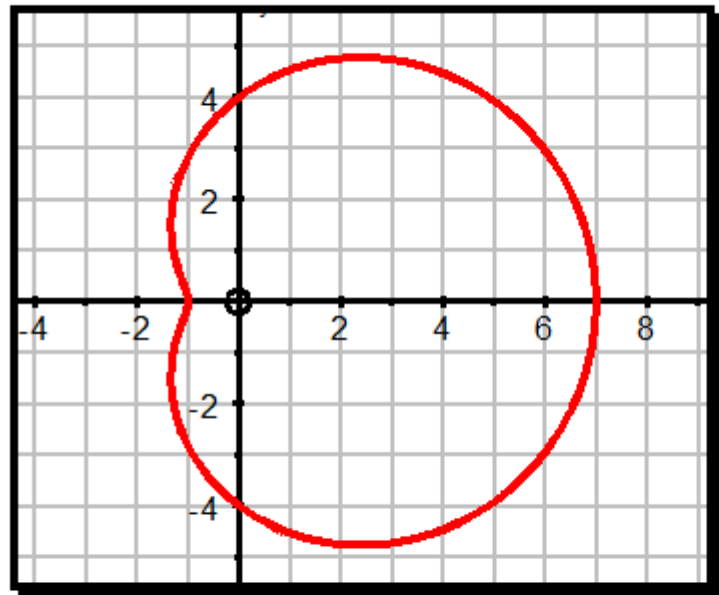
c.



d.



Find an equation for the graph below:



- a.  $r = 4 - 3 \cos \theta$       b.  $r^2 = 9 \cos \theta$       c.  $r = 2 \cos(3\theta)$       d.  $r = 4 + 3 \cos \theta$   
e. none of these

Find the sum  $7 + 3 + (-1) + \dots + (-113)$

a.  $-3286$

b.  $-1751$

c.  $424$

d. none of these

**The following is for questions**

An NFL punter at the 15 yard line kicks a football downfield with initial velocity 95 feet per second at an angle of elevation of  $65^\circ$ . Let  $t$  be the elapsed time since the football was kicked. Use parametric equations to answer the following questions. [Assume initial height is zero]

What is the distance the ball traveled in feet downfield? (to the nearest number shown)

- a. 215
- b. 220
- c. 225
- d. 230
- e. 235

What was the hang time in seconds? Round to the nearest tenth.

- a. 5.1
- b. 5.2
- c. 5.3
- d. 5.4
- e. 5.5

Find:  $\lim_{x \rightarrow 5^-} \left( \frac{7x}{x-5} \right)$

- a.  $-\infty$                       b.  $7$                       c.  $\infty$                       d.  $0$   
e. none of these

Find:  $\lim_{x \rightarrow 2} \left( \frac{x^3 - 8}{x^4 - 16} \right)$

a.  $\frac{1}{6}$

b.  $\frac{3}{8}$

c.  $\frac{1}{4}$

d.  $\frac{1}{32}$

e. none of these

Find:  $\lim_{n \rightarrow \infty} \sum_{i=1}^n \left[ \frac{8i-n}{n^2} \right]$

a. 4

b. 9

c. 8

d. 5

e. none of these



Find the point on the unit circle that corresponds to  $-\frac{\pi}{4}$

a.  $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$

b.  $\left(\frac{1}{2}, \frac{1}{2}\right)$

c.  $(1, -1)$

d.  $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$

e. none of these

Determine which angle is coterminal to  $\theta = -\frac{5\pi}{6}$

a.  $\frac{5\pi}{6}$

b.  $\frac{7\pi}{6}$

c.  $\frac{\pi}{6}$

d.  $\frac{11\pi}{6}$

Determine which of the following *positive* angles is *complementary* to  $\theta = \frac{\pi}{6}$

a.  $\frac{5\pi}{6}$

b.  $\frac{13\pi}{6}$

c.  $\frac{\pi}{3}$

d.  $\frac{11\pi}{6}$

e. none of these