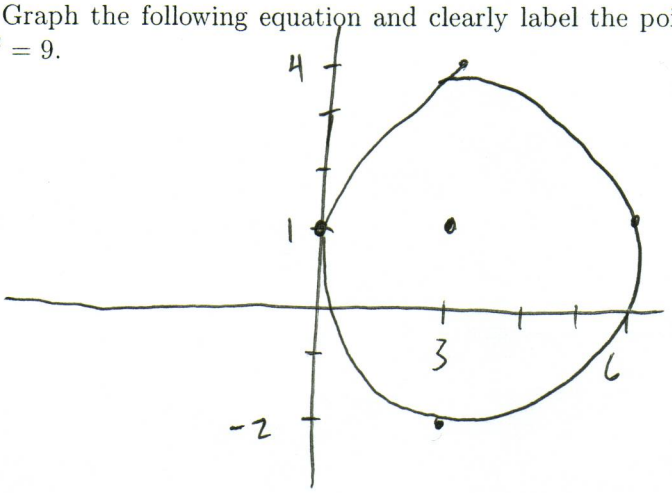
12. (*7 points*) Graph the following equation and clearly label the points you use to draw: $(x-3)^2+(y-1)^2=9$.



13. (*7 points*) Solve the following inequality: $-3x-3<12$. Clearly indicate the steps involved in your solution (or lose points).

$-3x < 15$

$x > -5$

14. (*7 points*) The rate of vibration, V, of a string under constant tension varies inversely with the length, L of the string. If a string with the same tension is 20 inches long and vibrates 500 times a second, what is the length of a string that vibrates 200 times a second? Clearly indicate the steps involved in your solution (or lose points).

(a) $V = \frac{K}{L}$

(i) $500 = \frac{k}{20} \Rightarrow k = 10000$

$\Rightarrow V = \frac{10000}{L}$

(ii) $200 = \frac{10000}{L} \Rightarrow L = \frac{10000}{200} = 50$ inches