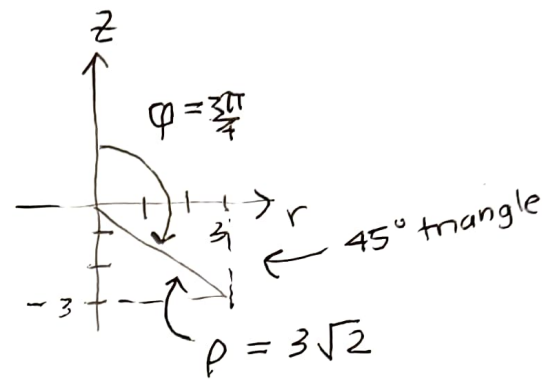
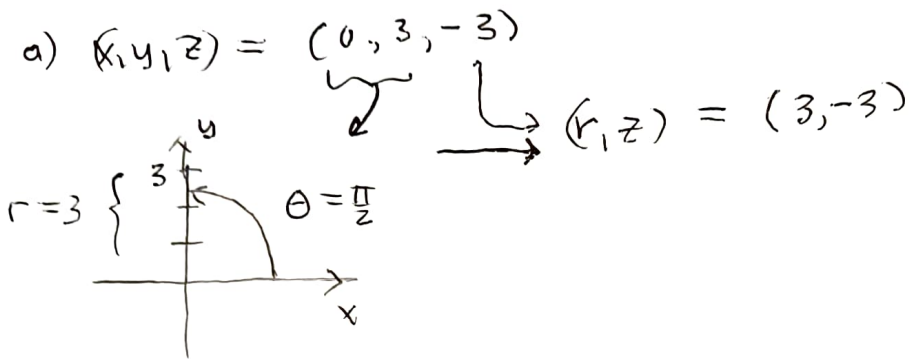
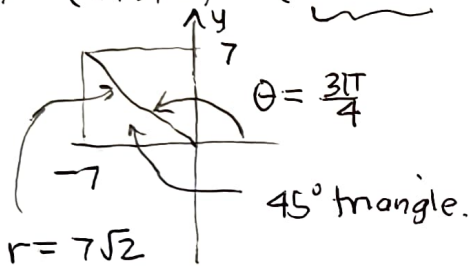


15.8.4. Draw 2d diagrams! (divide and conquer)

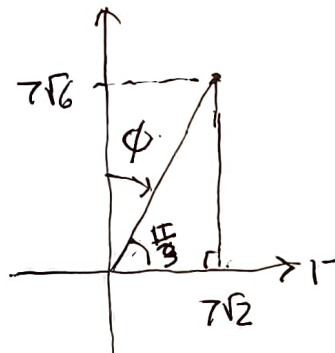


so  $(\rho, \theta, \phi) = (3\sqrt{2}, \frac{\pi}{2}, \frac{3\pi}{4})$

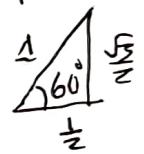
b)  $(x, y, z) = (-7, 7, 7\sqrt{6})$



$(r, z) = (7\sqrt{2}, 7\sqrt{6})$



$(7\sqrt{2})\sqrt{3} \rightarrow \frac{z}{r} = \sqrt{3}$



$\phi = \frac{\pi}{6}$

$\rho = 2(7\sqrt{2})$   
 $= 14\sqrt{2}$

so  $(\rho, \theta, \phi) = (14\sqrt{2}, \frac{3\pi}{4}, \frac{\pi}{6})$

First pass through cylindrical coords with x-y plane diagram for polar coords, then pass to r-z plane to get  $(\rho, \phi)$ .