

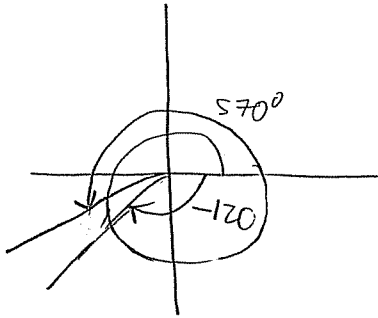
1a) Complementary — (1)

$$\text{Since } 37^\circ + 53^\circ = 90^\circ \quad (1)$$

b) Neither (1)

$$111^\circ 30' 30'' + 69^\circ 30' 30'' = 181^\circ 1' \quad (1)$$

c) No. (1)



$$570^\circ - 360^\circ = 210^\circ \quad (1)$$

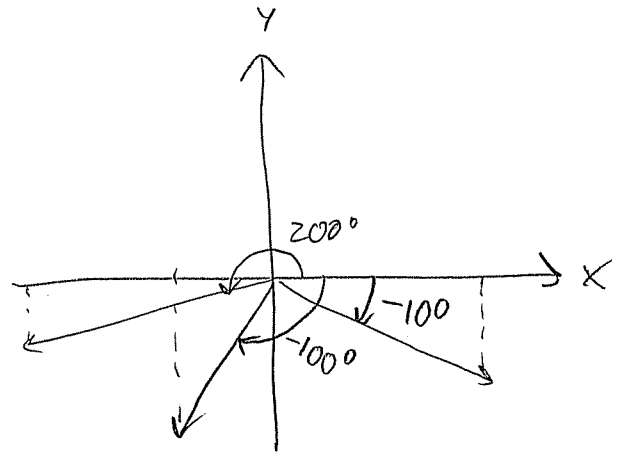
$$-120 + 360^\circ = 240^\circ$$

Z

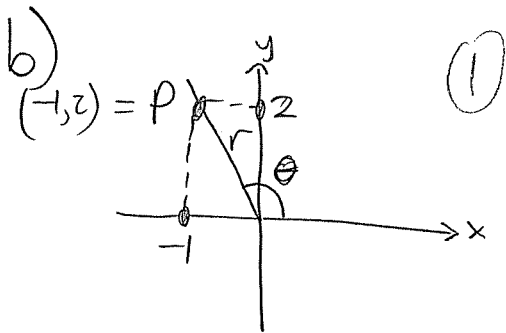
a)  $\sin(200^\circ)$  is -ve (1)

b)  $\tan(-100^\circ)$  is +ve (1)

c)  $\cos(-10^\circ)$  is +ve (1)



3 a)  $P = (-1, z)$  is on the line since  $z = (-z)(-1)$  ①  
and is in the II<sup>nd</sup> quadrant



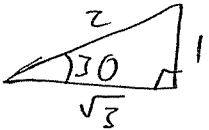
$$r^2 = (-1)^2 + z^2 = 5$$

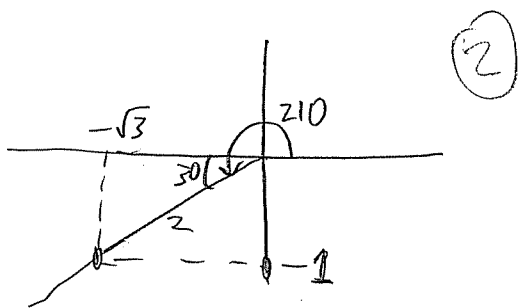
$$\text{so } r = \sqrt{5}$$

$$\sin(\theta) = \frac{\text{y-coord}}{r} = \frac{z}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

$$\cos(\theta) = \frac{\text{x-coord}}{r} = \frac{-1}{\sqrt{5}} = \frac{-\sqrt{5}}{5}$$

$$\tan(\theta) = \frac{\text{y-coord}}{\text{x-coord}} = \frac{z}{-1} = -z$$

4)  $30^\circ$  is the reference angle of  $210^\circ$  since 



$$\sin(210^\circ) = \frac{-1}{2}$$

$$\cos(210^\circ) = \frac{-\sqrt{3}}{2}$$

$$\tan(210^\circ) = \frac{-1}{-\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$