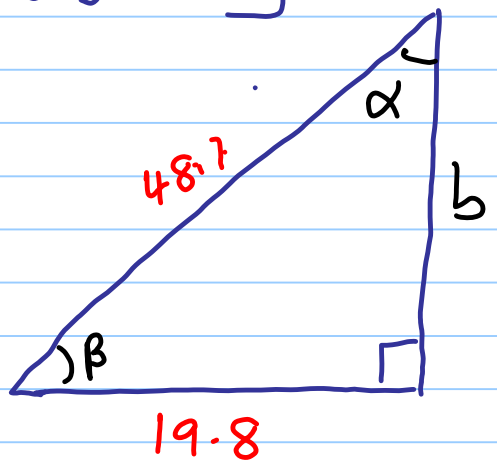
October 28, 2010

Note Title 10/28/2010

§6.3 #35



$b^2 + (19.8)^2 = (48.7)^2$

$b^2 = 2371.69 - 392.04$

$= 1979.65$

$b \approx 44.4932$

$b \approx 44.5$ 3 significant digits

$$\cos\beta = \frac{adj}{hyp}$$

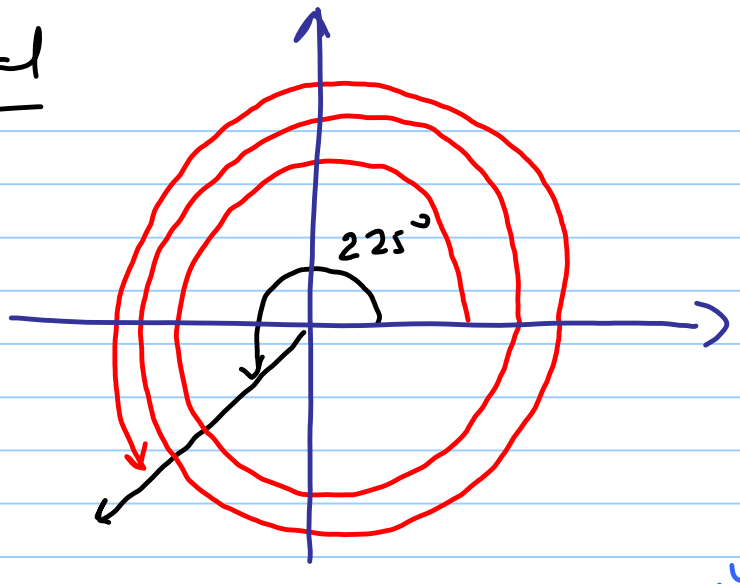
$$\cos\beta = \frac{19.8}{48.7} \qquad \beta = \cos^{-1}\left(\frac{19.8}{48.7}\right)$$

$$\cos\beta \approx 0.407$$

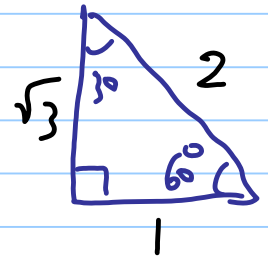
$$\beta \approx \cos^{-1}(0.407) \approx 66.0^\circ$$

$$\boxed{\alpha + \beta = 90^\circ} \qquad \alpha = 90^\circ - 66^\circ$$

Coterminal

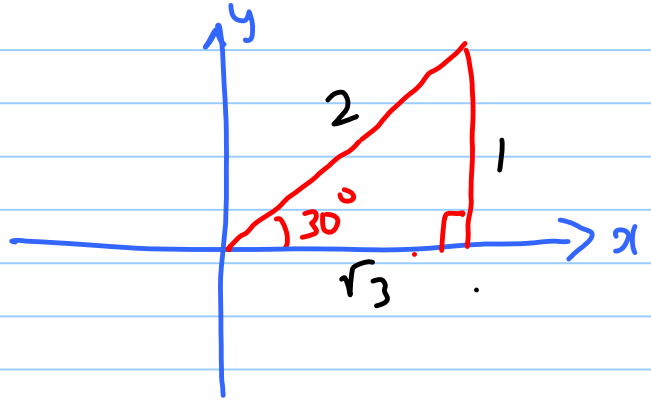


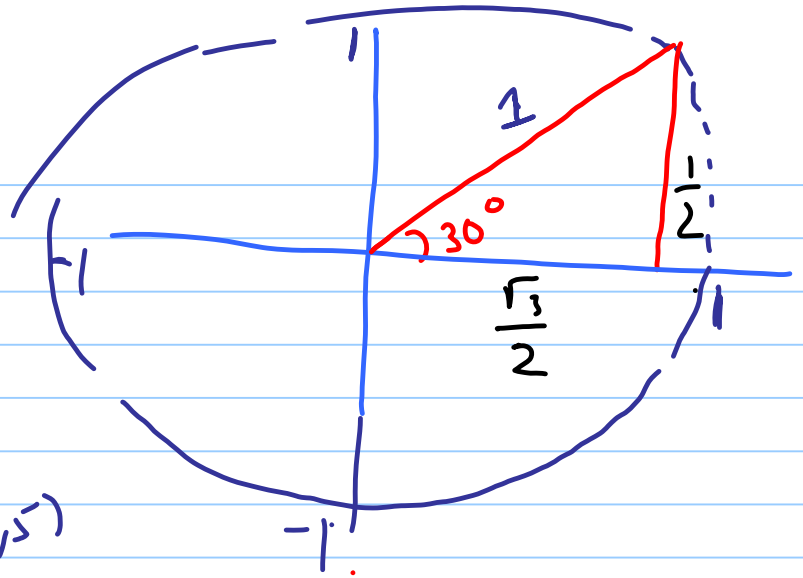
Common angles



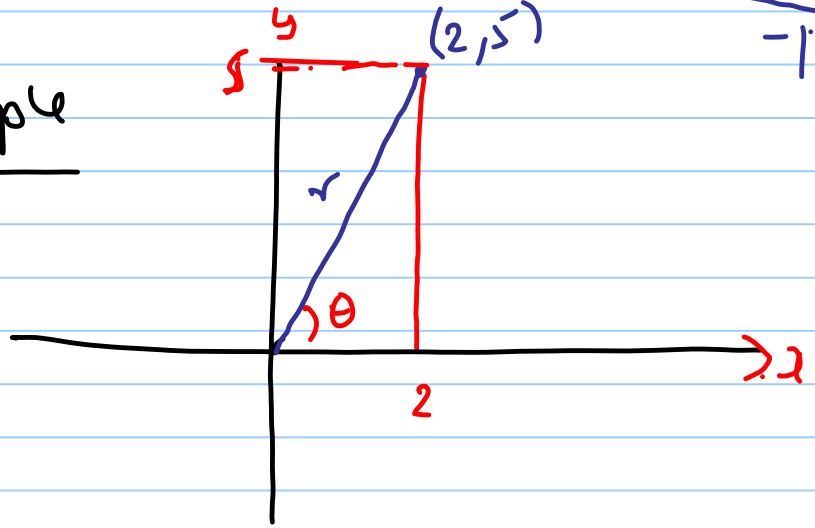
$$\sin 30^\circ = \frac{1}{2}$$

$$\cos 30^\circ = \frac{\sqrt{3}}{2}$$





Example



$$r = \sqrt{x^2 + y^2}$$

$$= \sqrt{2^2 + 5^2}$$

$$= \sqrt{29}$$

$$\sin\theta = \frac{y}{r} = \frac{5}{\sqrt{29}}$$

$$= \frac{5\sqrt{29}}{29}$$

$$\cos\theta = \frac{x}{r}$$

$$= \frac{2}{\sqrt{29}} = \frac{2\sqrt{29}}{29}$$

$$\tan\theta = \frac{y}{x} = \frac{5}{2}$$

$$\csc\theta = \frac{r}{y} =$$

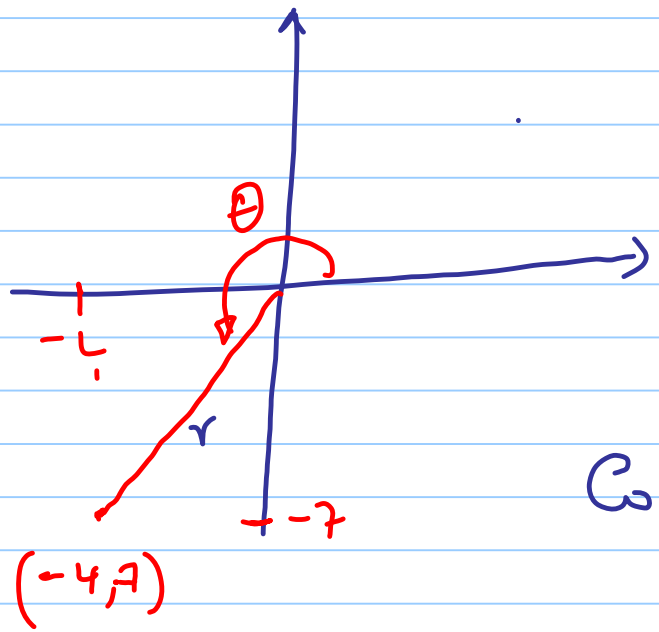
$$= \frac{\sqrt{29}}{5}$$

$$\sec\theta = \frac{r}{x}$$

$$= \frac{\sqrt{29}}{2}$$

$$\cot\theta = \frac{x}{y} = \frac{2}{5}$$

Example



$$r = \sqrt{(-4)^2 + (-7)^2}$$

$$= \sqrt{16 + 49}$$

$$= \sqrt{65}$$

$$\cos\theta = \frac{x}{r} = \frac{-4}{\sqrt{65}} = \frac{-4\sqrt{65}}{65}$$

$$\sin\theta = \frac{y}{r} = \frac{-7}{\sqrt{65}} = \frac{-7\sqrt{65}}{65}$$

$$\tan\theta = \frac{y}{x} = \frac{-7}{-4} = \frac{7}{4}$$

$$\sec\theta = \frac{r}{x} = \frac{\sqrt{65}}{-4}$$

$$\csc\theta = \frac{r}{y} = \frac{-\sqrt{65}}{7}$$

$$\cot\theta = \frac{x}{y} = \frac{-4}{-7} = \frac{4}{7}$$