

2. Each point lies on the terminal arm of angle θ in standard position.

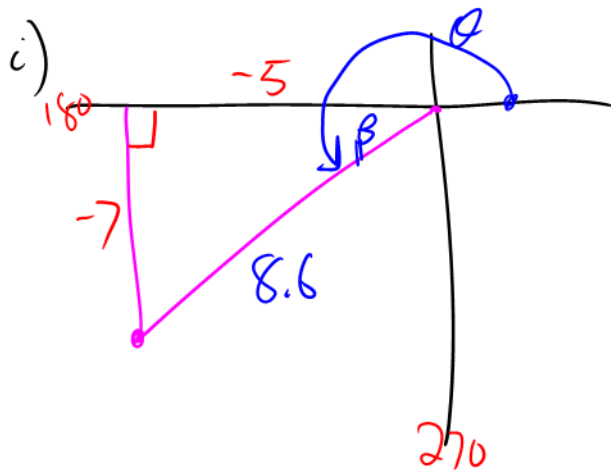
i) Draw a sketch of each angle θ .

ii) Determine the value of r to the nearest tenth.

iii) Determine the primary trigonometric ratios for angle θ .

iv) Calculate the value of θ to the nearest degree.

$P(-5, -7)$



ii)

$$x^2 + y^2 = r^2$$
$$(-5)^2 + (-7)^2 = r^2$$

$$25 + 49 = r^2$$

$$74 = r^2$$

$$8.6 = r$$

iii)

$$\sin \theta = \frac{-7}{8.6}$$

$$\cos \theta = \frac{-5}{8.6}$$

$$\tan \theta = \frac{-7}{-5} = \frac{7}{5}$$

iv)

$$\theta = \sin^{-1}\left(\frac{-7}{8.6}\right)$$

$$\theta = -54^\circ$$

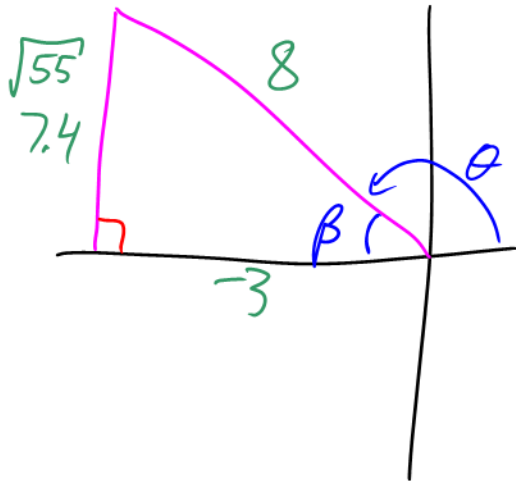
$$\theta = 180 - -54$$
$$= 234^\circ$$

6. Angle θ is a principal angle that lies in quadrant 2 such that $0^\circ \leq \theta \leq 360^\circ$.

K Given each trigonometric ratio,

- determine the exact values of x , y , and r
- sketch angle θ in standard position
- determine the principal angle θ and the related acute angle β to the nearest degree

$$\cos \theta = \frac{-3}{8} = \frac{x}{r}$$



$$x^2 + y^2 = r^2$$

$$(-3)^2 + y^2 = 8^2$$

$$y^2 = 55$$

$$y = 7.4$$

$$\theta = \cos^{-1}\left(-\frac{3}{8}\right)$$

$$\theta = 112^\circ$$

$$\beta = 180 - 112$$

$$\beta = 68^\circ$$

4. Use the related acute angle to state an equivalent expression.

$$a) \tan 45 = \tan(180 + 45) = \tan 225$$

$$b) \sec 220 = \sec(360 - 220) = \sec 140$$

$$c) \sin 120 = \sin(180 - 120) = \sin 60$$

$$d) \cot 310 = \cot(180 + 310) = \cot 490$$

-360

$$= \cot 130$$

$$e) \csc 265 = \csc(180 - 265) = \csc -85$$

+360

$$= \csc 275$$

$$f) \cos 100 = \cos(360 - 100) = \cos 260$$

8. Use each trigonometric ratio to determine all values of θ , to the nearest degree if $0^\circ \leq \theta \leq 360^\circ$.

a) $\cos \theta = -0.2124$

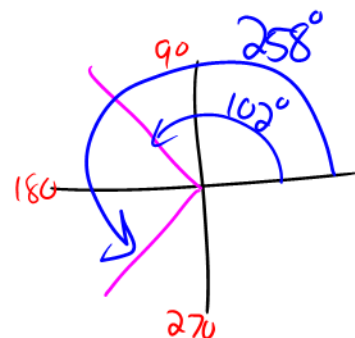
S	A
T	C

$$\theta = \cos^{-1}(-0.2124)$$

$$\theta = \underline{102^\circ}$$

$$\theta = 360 - 102$$

$$= \underline{258^\circ}$$



b) $\cot \theta = -\underline{2.2388}$

$$\tan \theta = \frac{1}{-2.2388}$$

$$\theta = \tan^{-1}\left(\frac{1}{-2.2388}\right)$$

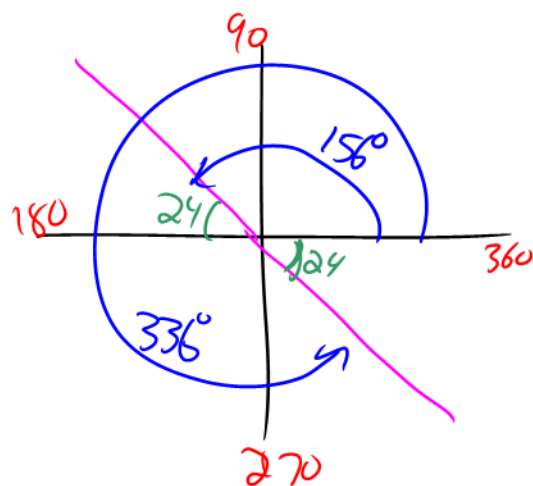
$$\theta = -24^\circ$$

$$= 180 + -24$$

$$= 156^\circ$$

$$\theta = 180 + 156$$

$$= 336^\circ$$



Pg 299 # 2, 4, 6, 8, 9