2.2 Trigonometric Ratios of Any Angle (III)

← use a calculator!

Example: Solve each equation, for $0° \leq \theta < 360°$, to the nearest degree.

a) $\cos\theta = \dfrac{3}{8}$

Quad
I OR IV
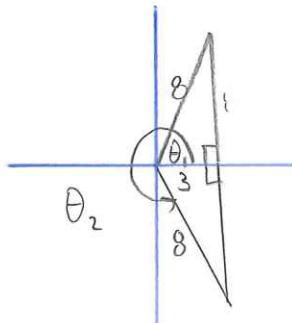
$\theta = \cos^{-1}(3/8) = 67.9757°$

$\boxed{\theta_1 \doteq 68°}$

$\theta_2 = 360° - 68°$

$\boxed{\theta_2 \doteq 292°}$

b) $\sin\theta = -0.324$

Quad
III OR IV
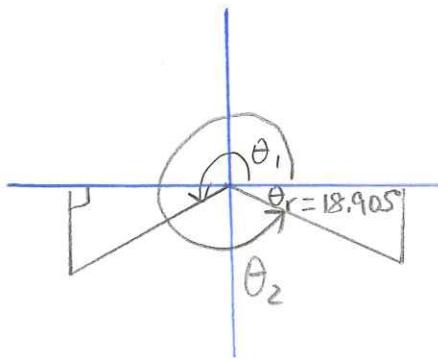
$\theta_r = 18.905°$

$\theta = \sin^{-1}(-0.324) \doteq -18.905°$

So $\theta_r = 18.905°$

$\theta_1 = 180° + \theta_r \doteq \boxed{199°}$

$\theta_2 = 360° - \theta_r \doteq \boxed{341°}$

Example: The point (9,–4) is on the terminal arm of an angle θ. Find θ to the nearest degree.
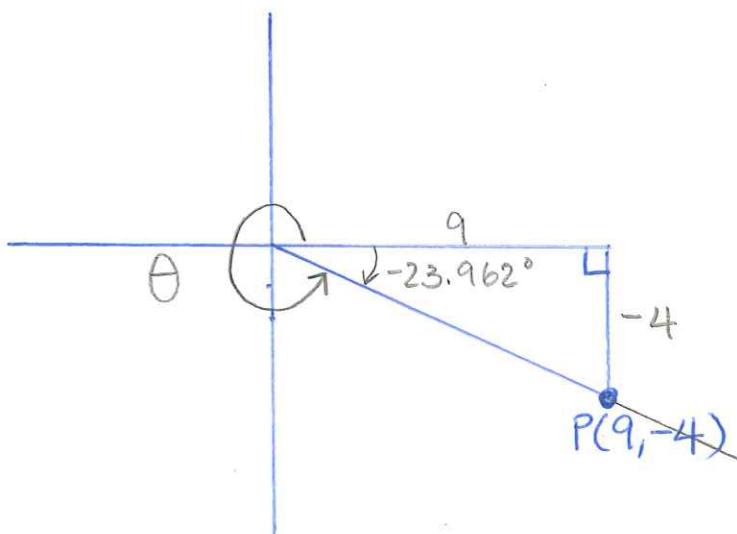
$\tan^{-1}\left(\dfrac{-4}{9}\right) \doteq -23.962°$

So $\theta_r \doteq 23.962°$

$\theta = 360° - \theta_r$

$\boxed{\theta \doteq 336°}$

9

–23.962°

–4

P(9,–4)