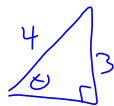


Using Trigonometric Ratios to Solve for Angles

Example 1

Suppose that $\sin \theta = \frac{3}{4}$. Solve for angle θ (to the nearest degree). How many answers are there?

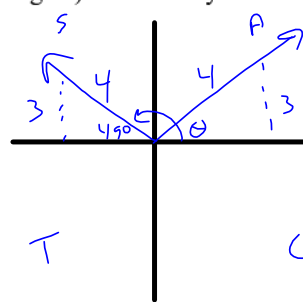


$$\theta = \sin^{-1}\left(\frac{3}{4}\right)$$

$$\theta \approx 49^\circ$$

$$\text{or } \theta = 180 - 49$$

$$\theta \approx 131^\circ$$



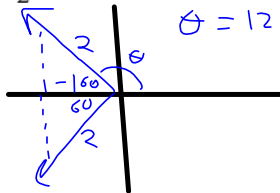
2 between
0 - 360°

Example 2

Let $\cos \theta = \frac{-1}{2}$. Find θ (to the nearest degree).

$$\beta = \cos^{-1}\left(\frac{1}{2}\right)$$

$$\beta = 60^\circ$$

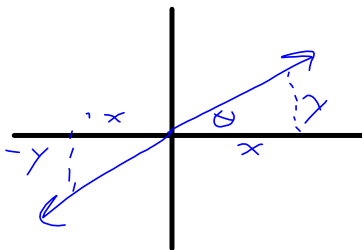


$$\theta = 120^\circ \text{ or } \theta = 180 + 60$$

$$\theta = 240^\circ$$

Example 3

Let $\tan \theta = 0.3640$. Solve for θ .



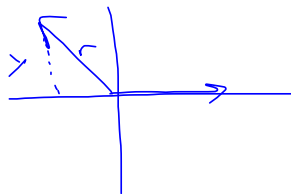
$$\theta = \tan^{-1}(0.364)$$

$$\theta \approx 20^\circ \text{ or } \theta = 180^\circ + 20^\circ$$

$$\theta = 200^\circ$$

Example 4

Let $\sin \theta = 0.8910$. Solve for θ if $90^\circ < \theta < 180^\circ$.



$$\beta = \sin^{-1}(0.891)$$

$$\beta \approx 63^\circ$$

$$\theta = 180 - 63$$

$$\theta = 117^\circ$$

MCF3M

Lesson 2

Coterminal angles are angles that share the same terminal arm when drawn in standard position.

$0^\circ, 360^\circ, 720^\circ, \dots$

$10^\circ, 370^\circ, \dots$

Non-coterminal angles are angles that do not share the same terminal arm when drawn in standard position.

30° and 330°

This term is used in your textbook quite a lot.

Example 5

Find a 2 non-coterminal values for θ such that $\tan \theta = 0$.

$0^\circ, 180^\circ$

Special Angles

How can we determine the value of the $\sin 90^\circ$? = + |

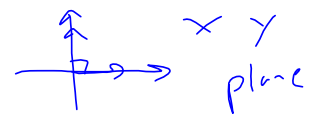
Poor Reasoning...

calculator

Better Reasoning...

Freddy's height

Even Better...



How can we determine the value of the $\sin 270^\circ$? = - |

Poor Reasoning...

calculator

Better Reasoning...

Freddy's height

Even Better...

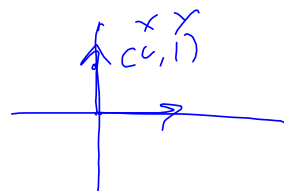
$$\sin \theta = \frac{y}{r}$$

$$= \frac{-1}{1}$$

What is the value of $\tan 90^\circ$?

undefined

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



Text page 246 #9a-c, 10abg, 14 and page 275 #10bd