

REFERENCE ANGLES AND GNATHING FUNCTIONS

— A REFERENCE ANGLE IS THE ACUTE ANGLE

BETWEEN THE TERMINAL ARM AND THE X-AXIS

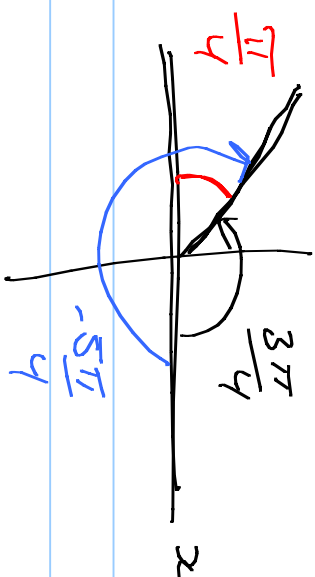
— ONCE WE HAVE THE REFERENCE ANGLE WE CAN

CALCULATE THE EXACT VALUES FOR THE TRIG

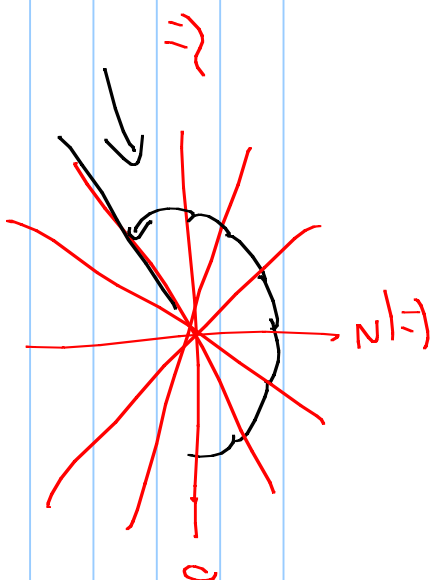
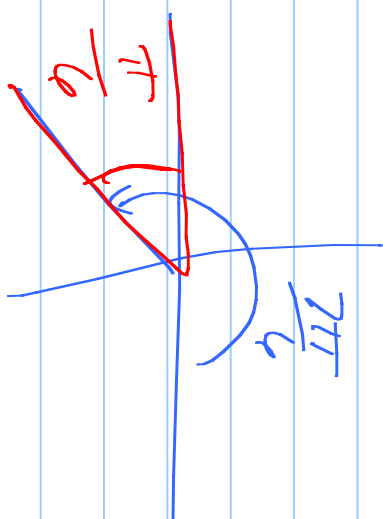
FUNCTION. WE WILL USE THESE VALUES TO

GNATH OUR TRIG FUNCTIONS

RECALL: REFERENCE ANGLE FOR $\frac{3\pi}{4}$



$$\frac{DE}{\frac{7\pi}{4}}$$



- A cycle of a periodic function is a part of its graph from any point to the first point where the graph starts repeating.
- The period is the difference in the values of θ for the points at the end of a cycle

Properties of $y = \sin x$

$$\text{Period} = 2\pi$$

$$\text{Max } y\text{-value} = 1$$

$$\text{Min } y\text{-value} = -1$$

$$\text{Domain: } \mathbb{R}$$

$$\text{Range: } -1 \leq y \leq 1$$

x -INTERCEPTS : $0, \pm\pi, \pm 2\pi, \pm 3\pi, \dots$ ($\pm n\pi, n \in \mathbb{I}$)
 y -INTERCEPTS : 0

PROPERTIES OF $y = \cos x$

$$\text{PERIODS} = 2\pi$$

$$\text{MAX } y\text{-VALUE} = 1 \quad \text{WHEN } y\text{-VALUE} = -1$$

$$\text{DOMAIN} : \mathbb{R} \quad \text{RANGE} : -1 \leq y \leq 1$$

$$x\text{-INTERCEPTS} = \pm \frac{\pi}{2}, \pm \frac{3\pi}{2}, \dots, \frac{(2n+1)\pi}{2}, n \in \mathbb{I}$$

$$y\text{-INTERCEPT} = 1$$

PROPERTIES OF $y = \tan x$

$$\text{PERIODS} : \pi$$

$$\text{DOMAIN} = \mathbb{R}, \quad x \neq \pm \frac{n\pi}{2}, \text{ WHERE } n \text{ IS ODD}$$

$$y\text{-INTERCEPT} = 0$$

$$x\text{-INTERCEPTS} = 0, \pm\pi, \pm 2\pi, \dots$$

$$\text{RANGE} = \mathbb{R}$$

$$n\pi, n \in \mathbb{Z}$$

$$* \text{ TANGENT} = \frac{\sin \theta}{\cos \theta} \quad *$$

$$\underline{\text{DEF}} \quad \text{GRAPH} \quad y = \sin x \quad (0 \leq x \leq \pi)$$

