

3 - coterminal angles.docx

Wednesday, March 4, 2020 10:06 AM



3 -
coterminal...



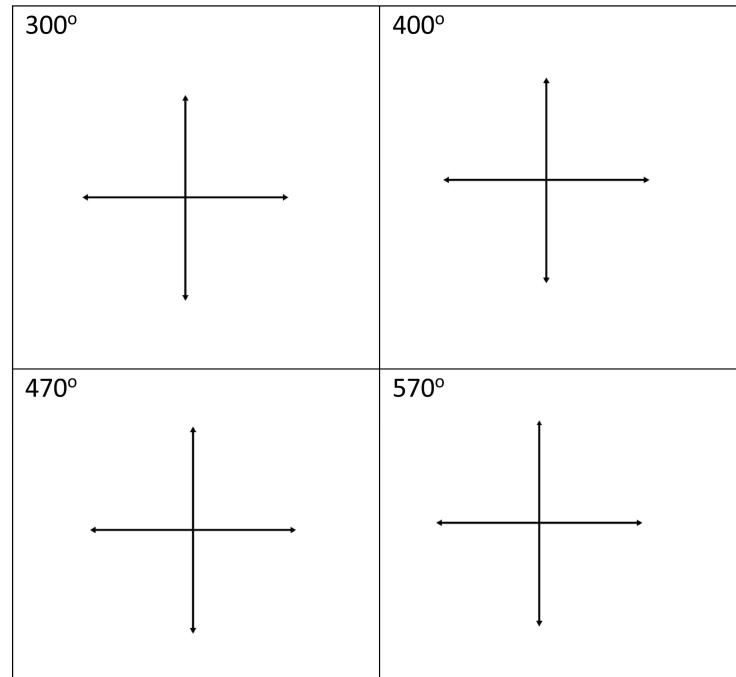
3 -
coterminal...

5.2 COTERMINAL ANGLES

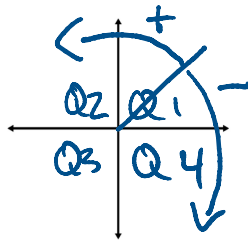
Name: _____ Blk: _____

Warm Up:

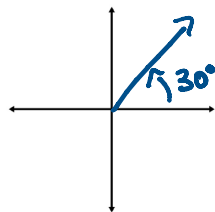
- Sketch each angle in standard position, which quadrant are you in?
- What is the reference angle?



- When the terminal arm rotates counter-clockwise the resulting angle is positive
- When the terminal arm rotates clockwise the resulting angle is negative



- a) If we rotate 30° in the positive direction we are in quadrant I and our angle is ~~_____~~



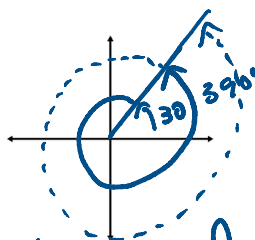
Ref. angle? = 30°

b) Continue another 360°

$$360^\circ + 30^\circ = \underline{390^\circ}$$

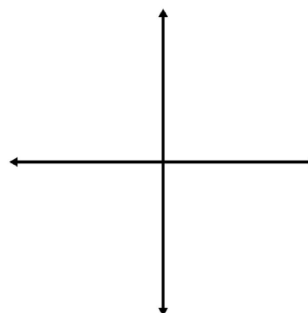
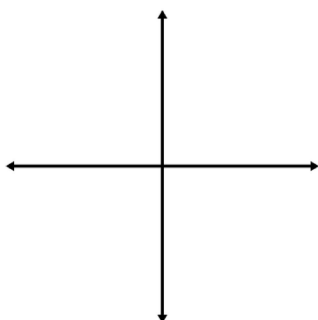
$$360 + 360 + 30 = 750^\circ$$

$30^\circ, 390^\circ, 750^\circ$ are coterminal angles.



Coterminal angles = principal angle $\pm 360^\circ n$ ($n = \#$ of rotations)

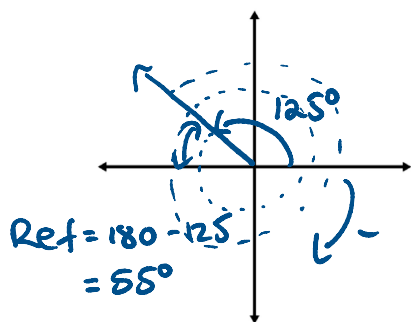
Principal angle = least positive angle that is coterminal with (smallest positive) a given angle. (between 0° and 360°)



EX: 125°

Determine 3 coterminal angles with 125°

Reference angle = 55° (angle between the terminal arm and x-axis, it will be between 0° and 90°)



Coterminal angles (principal $\pm 360^\circ n$)

125°

$$125^\circ + 360 = 485^\circ$$

$$125^\circ + 360(2) = 845^\circ$$

$$125^\circ + 360(-1) = -235^\circ$$

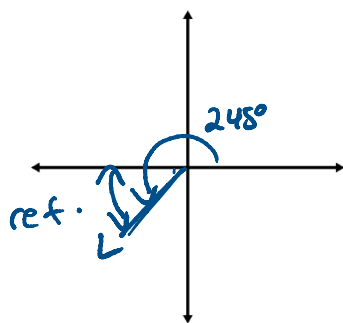
..., $-235^\circ, 125^\circ, 485^\circ, 845^\circ, \dots$

\uparrow least positive angle = principal angle
between 0° and 360°

You Try: Determine 4 coterminal angles with 280°

$$\begin{aligned} 280^\circ + 360^\circ &= \underline{640^\circ} \\ 280^\circ + 360^\circ(2) &= 1000^\circ \\ 280^\circ + 360^\circ(-1) &= -80^\circ \\ 280^\circ + 360^\circ(-2) &= -440^\circ \dots \end{aligned}$$

EX Determine the principal angle and the reference angle to -1915° .



↑ rotation
clockwise.

* Sub add 360° until you get
an angle between 0° and 360°

$$-1915^\circ + 360^\circ(6) = 245^\circ \leftarrow \text{principal angle}$$

$$0^\circ < 245^\circ < 360^\circ$$

$$\begin{aligned} \text{ref. angle} &= 245^\circ - 180^\circ \\ &= \underline{65^\circ} \end{aligned}$$

You try: Determine the principal angle for 1203° .

$$1203^\circ - 360^\circ = 843^\circ$$

$$843^\circ - 360^\circ = 483^\circ$$

$$483^\circ - 360^\circ = 123^\circ$$

$$0^\circ < 123^\circ < 360^\circ$$

\therefore principal angle is 123°

① Worksheet \rightarrow hand in for completion TODAY.

② home assignment: p 445 #4c, 5c, 6c, 7a, 8

Try these!

$\rightarrow \{10cd, 11cd, 12cd, 13c, 14c, 16, 19c\}$

End... in class assignment for marks 5.1-5.3

Friday - in class assignment for marks 5.1-5.3

Gr. 10's

- Numeracy / Literacy Assessments,
- April 14-17
- look up Graduation Numeracy Assessment.
 - ↳ practice exam.
 - mc
 - type in your answer
 - written choice.
- school entrance → bulletin with schedule
→ look up your student number.