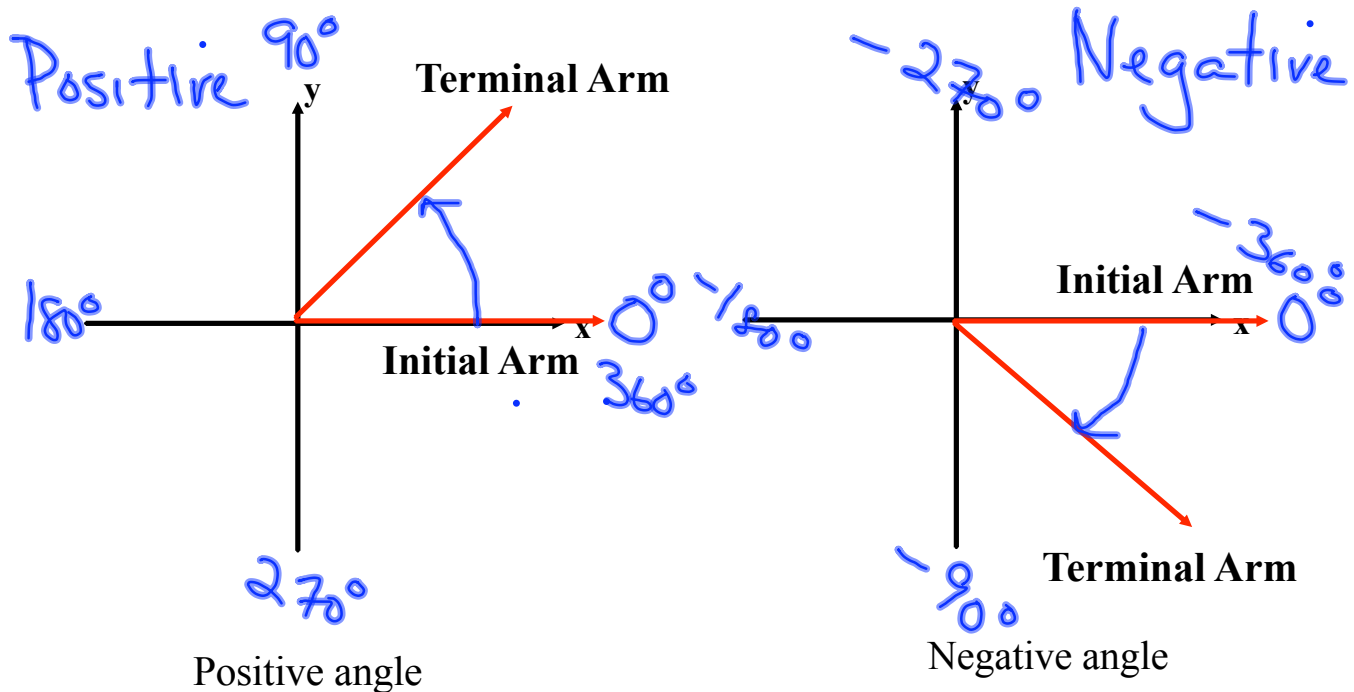
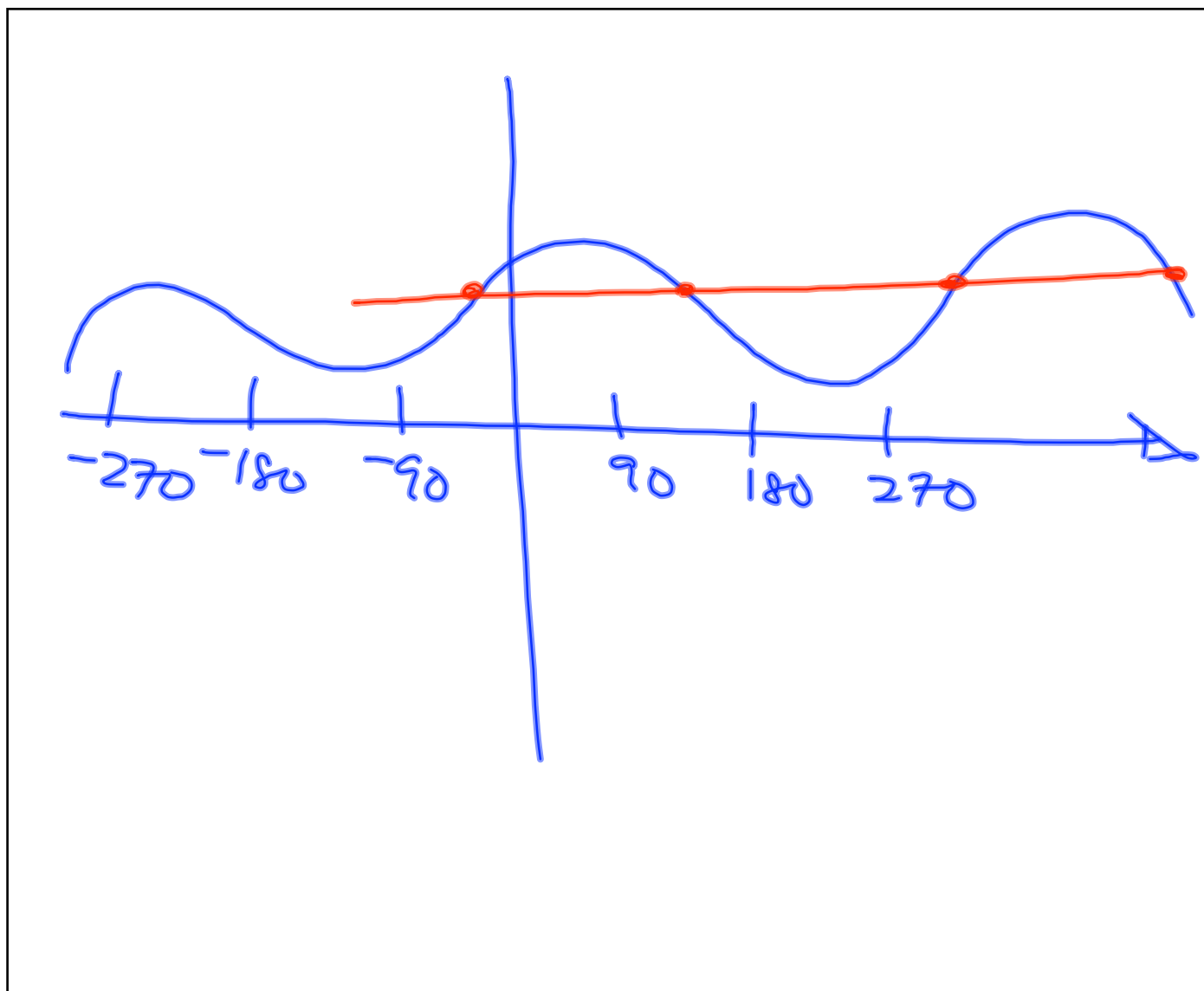


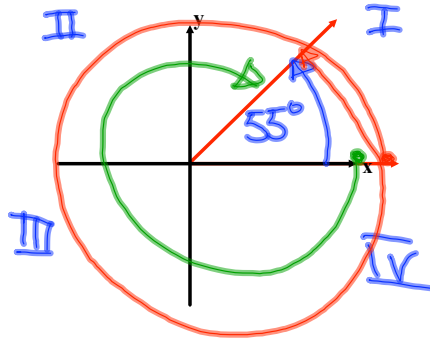
Day 2 - Angles in Standard Position

When we draw angles in standard position we start from the **positive x - axis**. **Positive angles** are drawn **counter clockwise** and **negative angles** are drawn **clockwise**.





Coterminal Angles: These are angles that have the same terminal arm



Eg. Draw two angles coterminal with 55°

$$\begin{array}{r} 360 \\ - 55 \\ \hline -305^\circ \end{array} \quad \begin{array}{r} 360 \\ + 55 \\ \hline 415^\circ \end{array}$$

Example 1:

For each angle:

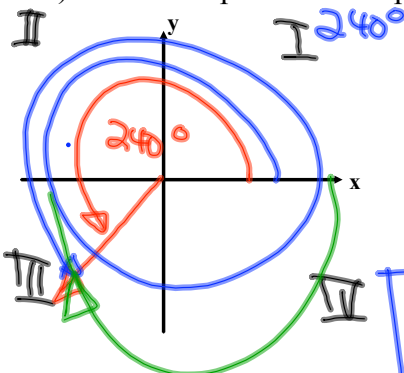
a) 240°

i) draw the angle in standard position

ii) determine two angles that are coterminal with the angle

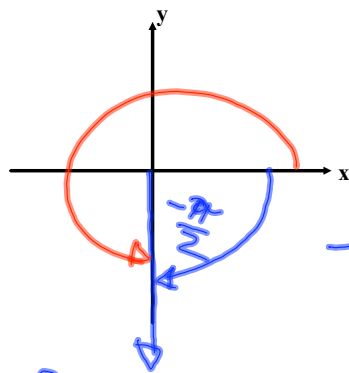
iii) write an expression to represent any coterminal angle.

b) $\frac{-\pi}{2}$ radians -90°



$$\begin{array}{r} 600^\circ \\ - 360 \\ \hline 240 \end{array} \quad \begin{array}{r} -120^\circ \\ + 360 \\ \hline 240 \end{array}$$

$$240^\circ + 360^\circ n$$



$$360^\circ = ? \text{ rad}$$

$$360 \times \frac{\pi}{180} = 2\pi$$

$$-\frac{\pi}{2} \pm 2\pi n$$

$$\begin{array}{l} -\frac{\pi}{2} + 2\pi \times 2 \\ +\frac{\pi}{2} + 4\pi \end{array}$$

$$\frac{3\pi}{2}$$

$$\begin{array}{l} -\frac{\pi}{2} - 2\pi \\ -\frac{\pi}{2} - 4\pi \end{array}$$

$$-\frac{5\pi}{2}$$

Example 2:

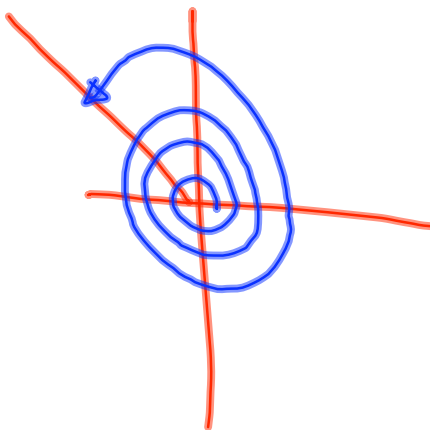
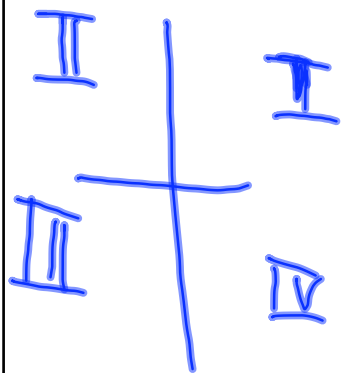
Suppose an angle P has rotated 1200° .

a) How many complete rotations have been made?

$$\frac{1200}{360} = 3.\overline{3} \quad \underline{\text{3 rotations}}$$

b) In what quadrant is P located?

$$3 \times 360^\circ$$



$$\underline{1200^\circ}$$

Example 3:

Suppose an angle G has rotated $11\pi/3$ radians.

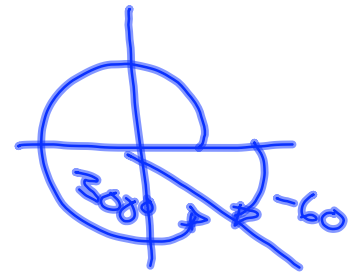
a) How many complete rotations have been made?

$$\frac{11\pi}{3} \div (2\pi) \quad 1 \text{ rotations}$$

$$1.8$$

b) In what quadrant is G located?

$$660^\circ - 360^\circ = 300^\circ$$



c) Name the angle less than 2π coterminal with $11\pi/3$.

$$-\frac{\pi}{3} \quad \frac{-60 \times \pi}{180}$$

d) Write an expression to represent any angle coterminal with your solution in part 'c'.

$$\frac{11\pi}{3} \pm 2\pi n$$

Assignment:

Pg. 174 #1-2, 4-5, 7, 9, 11, 13

↓
odds

↘
odds