Learning Goal: I will graph the primary trigonometric functions using radians.

Minds On: Whiteboard Radians

Action: Graphing the functions
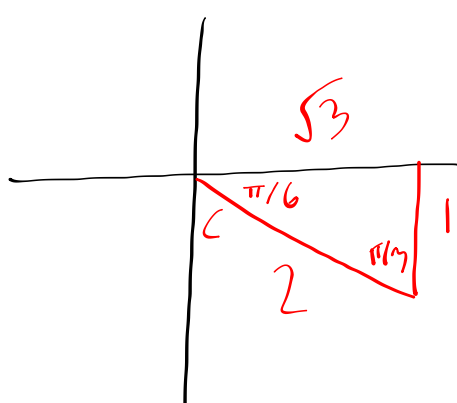
Consolidation: Follow-Up

Minds On

Opening Question

Determine the exact values of the primary trig ratios when

$$\theta = \frac{11\pi}{6}$$

then check using your calculator.

$$\sin \frac{11\pi}{6} = \frac{-1}{2}$$

$$\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$$

$$\tan \frac{11\pi}{6} = \frac{-1}{\sqrt{3}}$$

Minds On

Rough Sketches

On the back of your white board, make a rough sketch of **y = sin θ** and **y = cos θ** through one period. Use degrees for your horizontal axis.
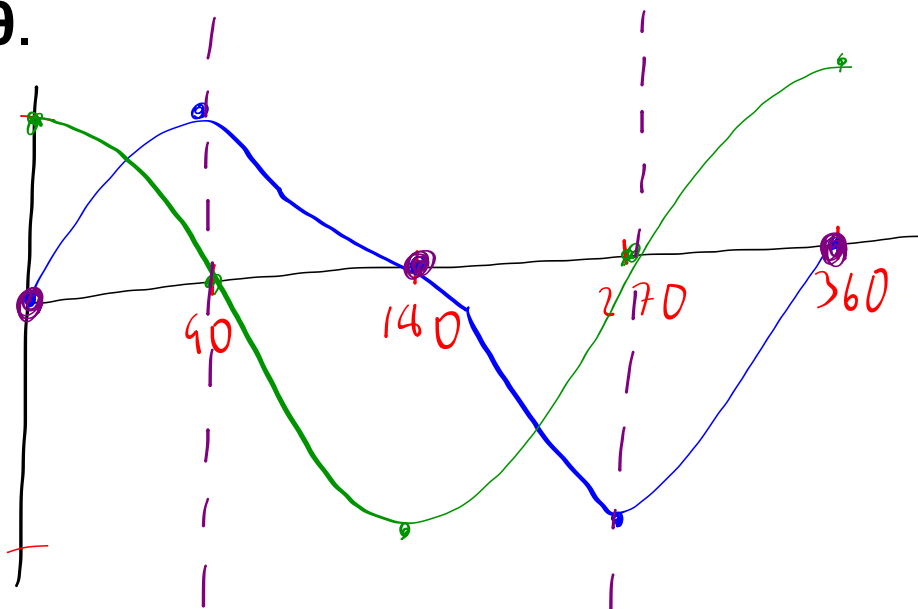
*Draw each in a different colour.

Minds On

Rough Sketches

You may remember from your trig. identities last year that

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

Get another colour of marker, and use this information to try and make a rough sketch of **y = tan θ.**

Action

Graphing the Primary Trigonometric Functions

Consolidation

Follow-Up Questions

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2c, 3, 5

*Switch your calculator to radians!

c) The equation $t_n = a + (n-1)d$ can be used to represent the general term of any arithmetic sequence, where a is the first term and d is the common difference. Use this equation to find an expression that describes the location of each of the following values for $y = \sin\theta$, where $n \in \mathbf{I}$ and θ is in radians.
   i) θ-intercepts
   ii) maximum values
   iii) minimum values

$$t_n = 0 + (n-1)\pi$$

i) $a = 0$

$$t_n = (n-1)\pi$$

$d = \pi$

$$t_n = \frac{\pi}{2} + (n-1)2\pi$$

ii) $a = \frac{\pi}{2}$

$d = 2\pi$