Review...

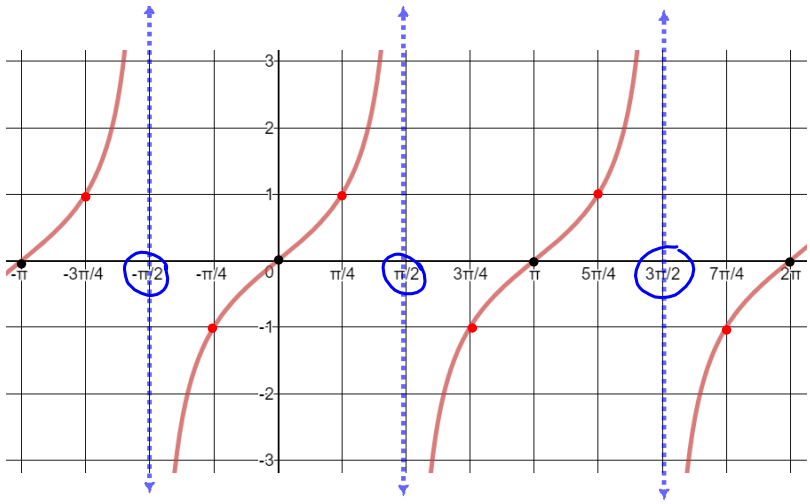
13.6 - Tangent Functions - Review Day

y = *a* tan *b*x

- Period = $\frac{\pi}{b}$
- Vertical Asymptotes at $x = \pm\frac{\pi}{2b}$ *(for one cycle centered at the origin)*
- The a-value stretches the points before/after the "zero" points.
- If the a-value is negative, then the graph is reflected over the x-axis.

Parent Function:

$y = \tan x$



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Ex1. Identify the period and where two asymptotes occur.

$y = 2\tan 4\theta$

Per: $\frac{\pi}{b} = \boxed{\frac{\pi}{4}}$

VAs: $x = \pm\frac{\pi}{2b}$

$x = \pm\frac{\pi}{2\cdot 4}$

$\boxed{x = \pm\frac{\pi}{8}}$

$y = \tan\frac{1\theta}{3}$

Per: $\frac{\pi}{\frac{1}{3}} = 3\pi$

VAs: $x = \pm\frac{\pi}{2\cdot\frac{1}{3}}$

$x = \pm\frac{\pi}{\frac{2}{3}}$

$\boxed{x = \pm\frac{3\pi}{2}}$

$y = -\tan\frac{3\theta}{2}$

Per: $\frac{\pi}{\frac{3}{2}} = \frac{2\pi}{3}$

VAs: $x = \pm\frac{\pi}{2\cdot\frac{3}{2}}$

$\boxed{x = \pm\frac{\pi}{3}}$

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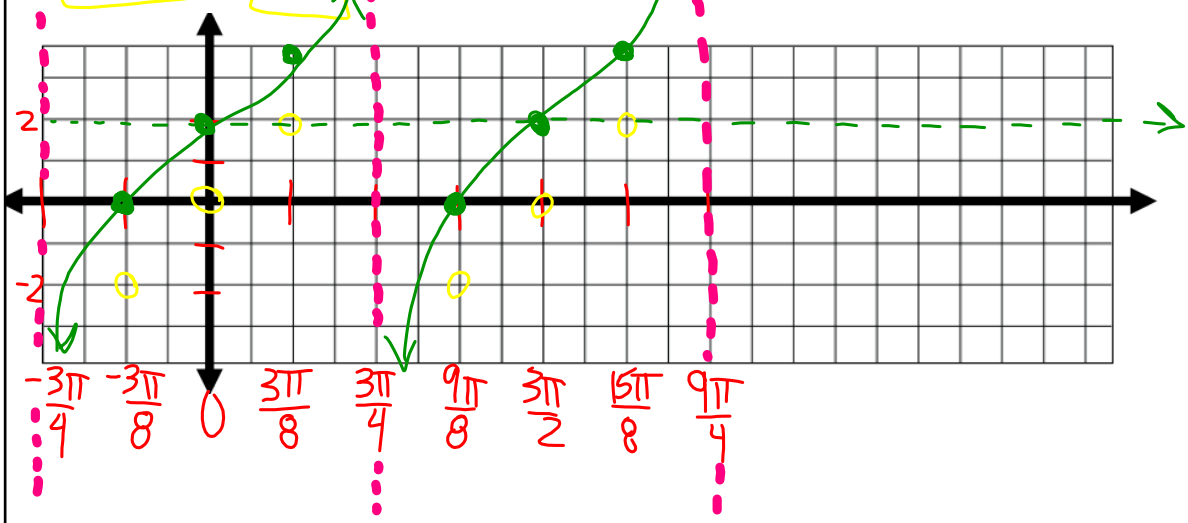
Ex3. Graph two cycles.

Period: $\frac{\pi}{\frac{2}{3}} = \frac{3\pi}{2}$

$y = 2\tan\frac{2\theta}{3} + 2$ → up 2



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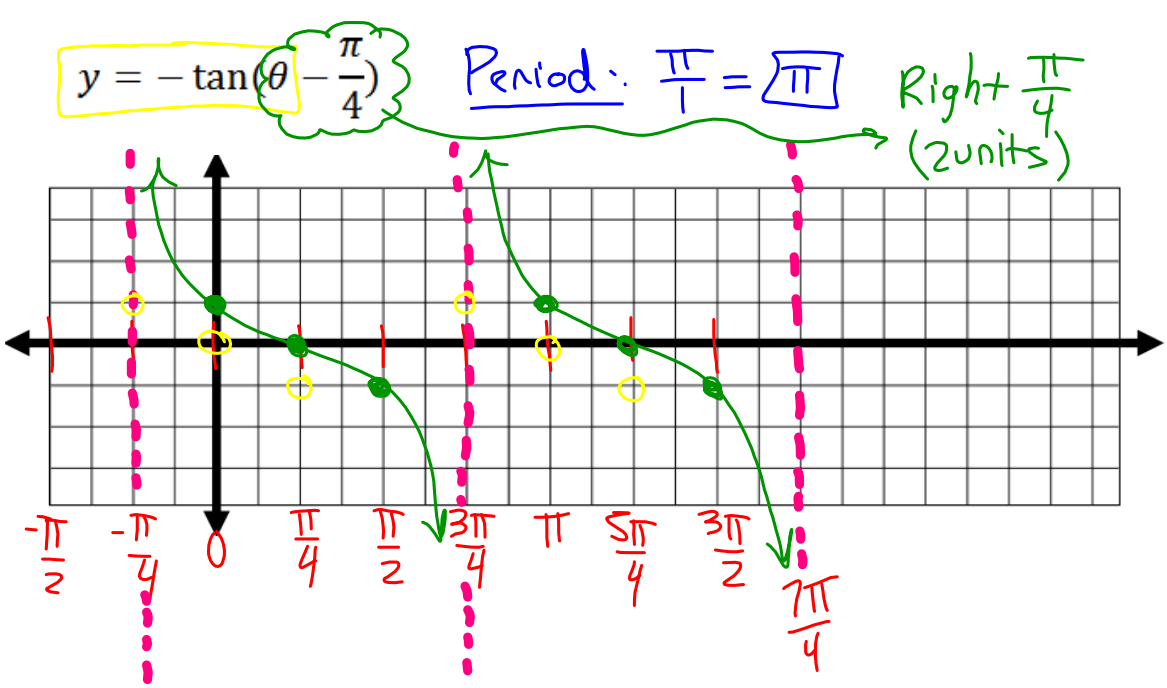
Ex3. Graph two cycles.

$y = -\tan(\theta - \frac{\pi}{4})$

Period: $\frac{\pi}{1} = \pi$

Right $\frac{\pi}{4}$ (2 units)



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