

A particular compound decays according to the equation where t is in days. Find the half-life of this compound.

$$y = ae^{-0.974t}$$

(half-life is the amount of time it takes for the original amount to decay to half as much)

$$\frac{1}{2}a = ae^{-0.974t}$$

half-life = equation for compound

Divide by a

$$\frac{1}{2} = e^{-0.974t}$$

$$\log_e \frac{1}{2} = -0.974t$$

$$\frac{\ln \frac{1}{2} = -0.974t}{-0.974 \quad -0.974}$$

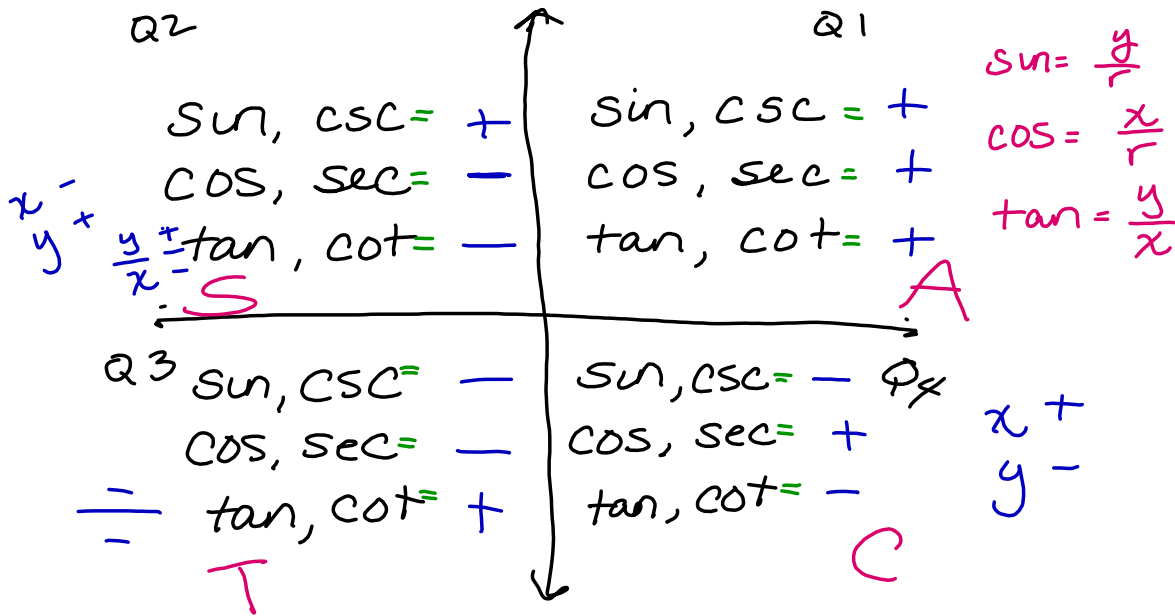
$$t = .712$$

Hints:
 $a =$ initial amount
 Think back to natural logs (\ln)

$$e^x = 4$$

$$\log_e 4 = x$$

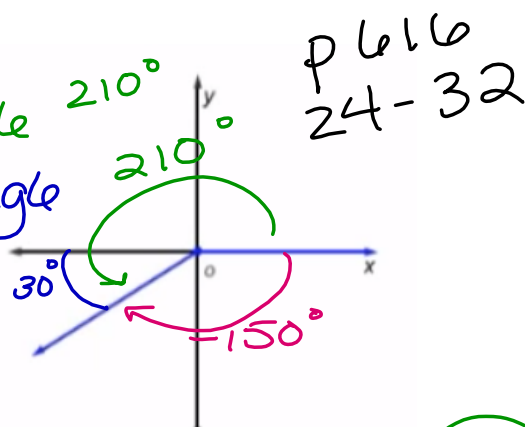
$$\ln 4 = x$$



Degrees	Radians	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$
0°	0	0	1	0	-	1	-
30°	$\frac{\pi}{6}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	2	$\frac{2\sqrt{3}}{3}$	$\sqrt{3}$
45°	$\frac{\pi}{4}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	$\sqrt{2}$	$\sqrt{2}$	1
60°	$\frac{\pi}{3}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	2	$\frac{\sqrt{3}}{3}$
90°	$\frac{\pi}{2}$	1	0	-	1	-	0

$\sec(-150^\circ)$

- ① Find coterminal angle 210°
- ② Find reference angle 30°
- ③ $\sec(-150^\circ) = -\sec(30^\circ)$



$$\begin{aligned}
 &= -\frac{1}{\cos(30^\circ)} \\
 &= -\frac{1}{\frac{\sqrt{3}}{2}} = -1 \cdot \frac{2}{\sqrt{3}} = \frac{-2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{-2\sqrt{3}}{3}
 \end{aligned}$$

$$\tan\left(\frac{3\pi}{4}\right)$$

