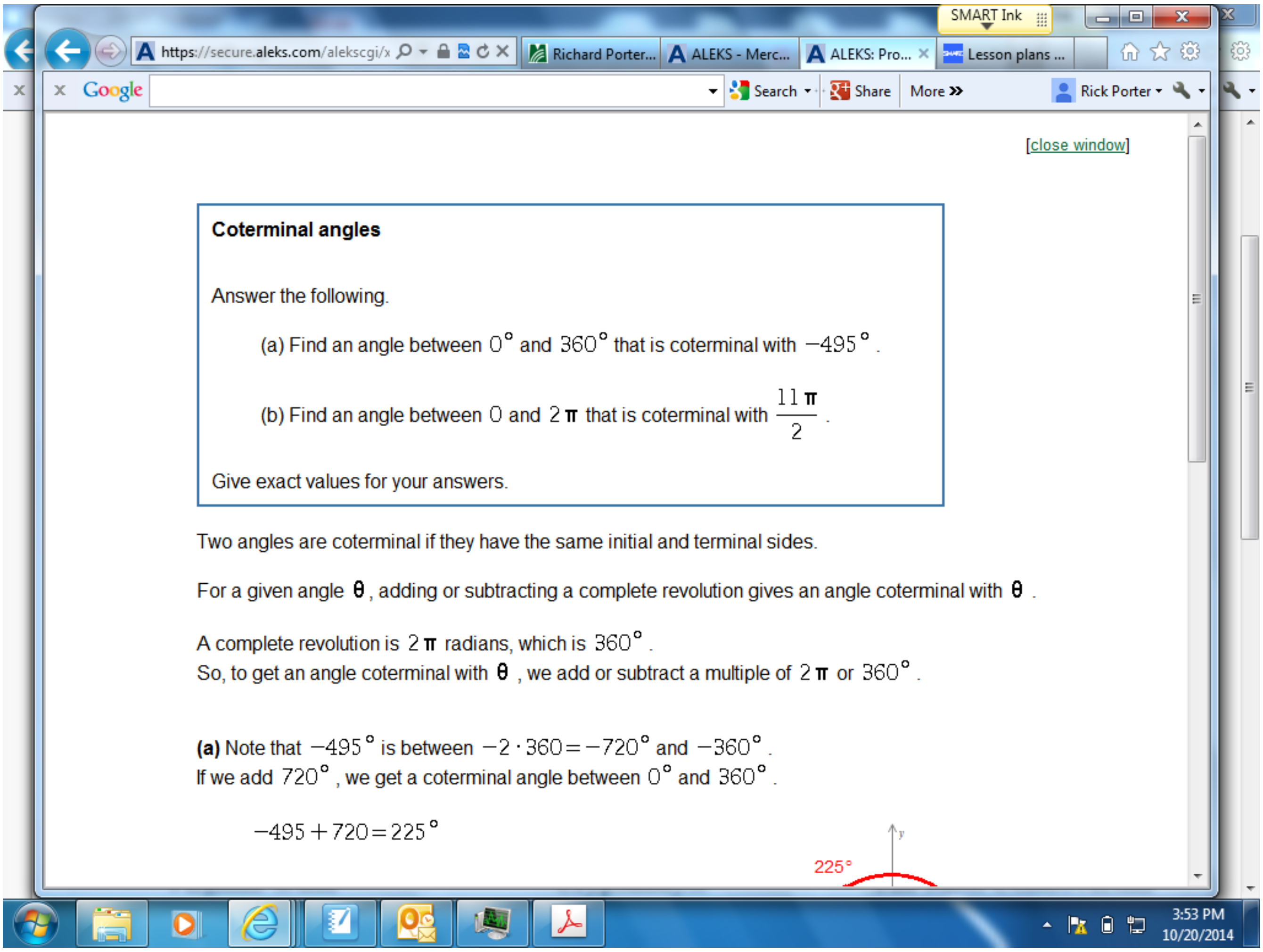

DREAM
BIG



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Coterminal angles

Answer the following.

(a) Find an angle between $0°$ and $360°$ that is coterminal with $-495°$.

(b) Find an angle between 0 and 2π that is coterminal with $\frac{11\pi}{2}$.

Give exact values for your answers.

Two angles are coterminal if they have the same initial and terminal sides.

For a given angle θ, adding or subtracting a complete revolution gives an angle coterminal with θ.

A complete revolution is 2π radians, which is $360°$.
So, to get an angle coterminal with θ, we add or subtract a multiple of 2π or $360°$.

(a) Note that $-495°$ is between $-2 \cdot 360 = -720°$ and $-360°$.
If we add $720°$, we get a coterminal angle between $0°$ and $360°$.

$$-495 + 720 = 225°$$

$-495 + 720 = 225°$

(b) Find an angle between 0 and 2π that is coterminal with $\frac{11\pi}{2}$.

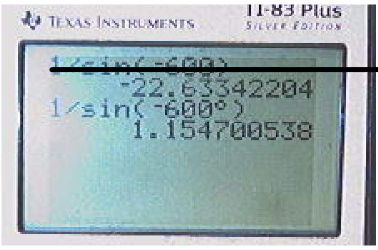
11pi/2 *180/pi=990

990-720=270

270*pi/180=3pi/2

convert to degrees...use what you know

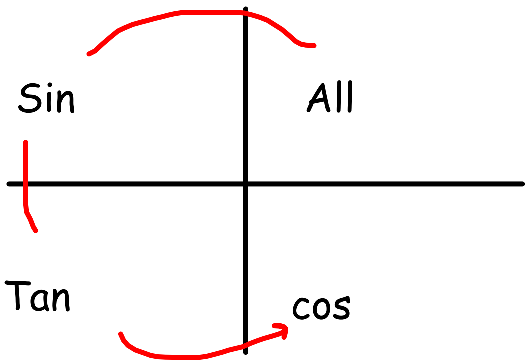
then convert back to radians



radians

$\csc(\pi/3) = \frac{2}{\sqrt{3}} \cdot \left(\frac{2\sqrt{3}}{3}\right) = 1.15\ldots$

$$\csc(-600°) = \frac{2\sqrt{3}}{3}$$



all student take calculus

ASTC

QI: ALL trig functions +

QII: Sine is +(csc +)

QIII:Tangent is +(cot +)

QIV: Cosine is + (sec +)

Finding trigonometric ratios from a point on the unit circle

Suppose that θ is an angle in standard position whose terminal side intersects the unit circle at $\left(-\frac{20}{29}, -\frac{21}{29}\right)$.

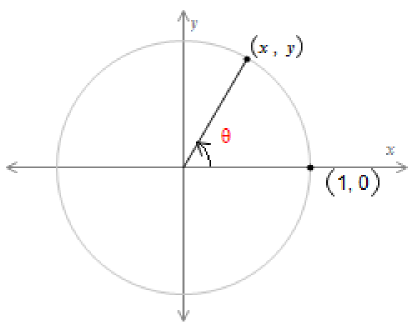
Find the exact values of $\sin\theta$, $\tan\theta$, and $\sec\theta$.

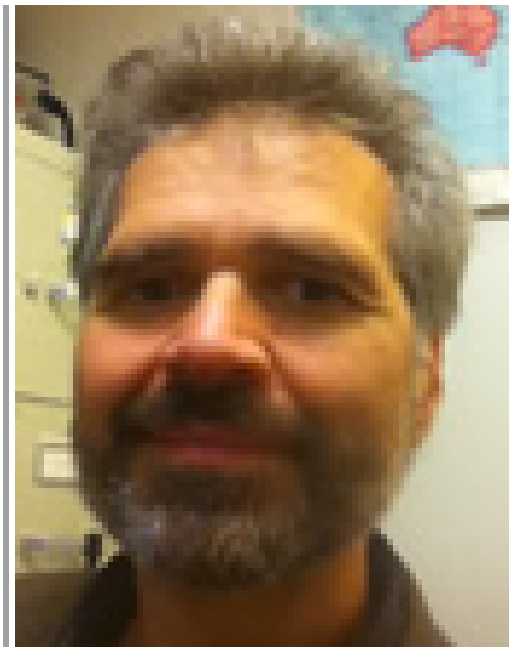
Suppose that θ is an angle in standard position.
Let (x, y) be the terminal point of θ (where the terminal side of θ intersects the unit circle).
Then the six trigonometric functions are defined as follows.

$$\sin\theta = y \qquad \csc\theta = \frac{1}{y},\ y \neq 0$$

$$\cos\theta = x \qquad \sec\theta = \frac{1}{x},\ x \neq 0$$

$$\tan\theta = \frac{y}{x},\ x \neq 0 \qquad \cot\theta = \frac{x}{y},\ y \neq 0$$





EX: $\log_3(x)+\log_3(x-1)=\log_3(5^2)$

Property: Prop 3:Ladder

$\log_3(x)+\log_3(x-1)=2\log_3(5)$

Day 16:REVISED Midterm (2) - Question #1;
Polynomial long division: Problem type 1

Divide.

$$\left(x^2+6x+4\right)\div\left(x+2\right)$$

Your answer should give the quotient and the remainder.

We can write the division like this.

$$x+2\,\overline{\big)\;x^2+6x+4}$$

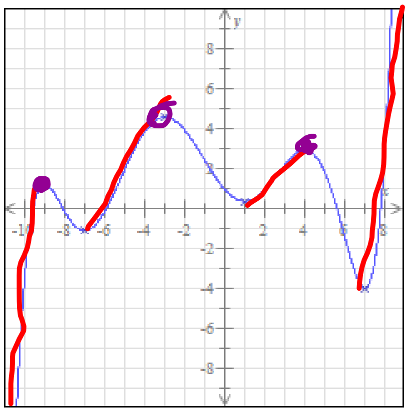
We start the division with the leading terms and get $\dfrac{x^2}{x}=x$.

Then, we multiply x by $x+2$ to get x^2+2x and subtract the result as shown below.

$$\begin{array}{r r}
 & x \\
x+2\,\big) & \overline{x^2+6x+4} \\
 & -\left(x^2+2x\right) \\
 & \overline{4x+4} \\
 & -\left(4x+8\right) \\
 & \overline{-4}
\end{array}$$

More

Quotient: x+4 remainder: -4



(a) The function f is increasing over which intervals? Choose all that apply.

☑ (-∞, -9) ☑ (-7, -3) ☑ (1, 4) ☐ (4, 7) ☐ (1, 7) ☑ (7, ∞)

(b) The function f has local maxima at which x-values? If there is more than one value, separate them with commas.

-9,-3,4

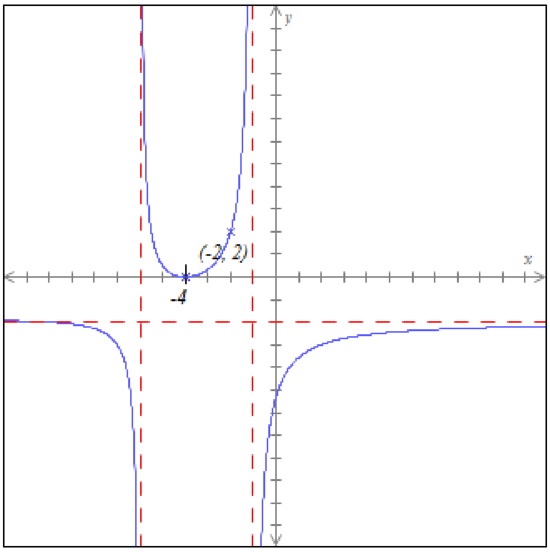
(c) What is the sign of the leading coefficient of f?

Select One positive because disco right

(d) Which of the following is a possibility for the degree of f? Choose all that apply.

☐ 4 ☐ 5 ☐ 6 ☑ 7 ☐ 8 ☑ 9

because disco = odd degree, 7 faces means no 5,3,1



- $f(x) = \dfrac{a}{x-b}$
- $f(x) = \dfrac{a(x-b)}{x-c}$
- $f(x) = \dfrac{a}{(x-b)(x-c)}$
- $f(x) = \dfrac{a(x-b)}{(x-c)(x-d)}$
- $f(x) = \dfrac{a(x-b)(x-c)}{(x-d)(x-e)}$

$a=-2$

ALEKS: Prof. Porter - Windows Internet Explorer

https://secure.aleks.com/alekscgi/x/Isl.exe/1o_u-IgNsIkasNW8D8A9PVVR1RH3cOF-hAdNBzO-01V-hG98Uba7TI8idG2wI9Q4TI9N6AGQn9KeOrYhPv0rEaQzKna29Y1HbxI1BnZsOOA380Br

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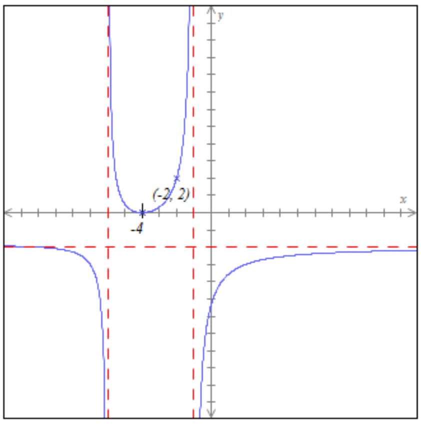
Day 16:REVISED Midterm (2) - Question #3;
Writing the equation of a rational function given its graph

The figure below shows the graph of a rational function f with vertical asymptotes $x=-1$, $x=-6$, and horizontal asymptote $y=-2$. The graph also has an x-intercept of -4 and it passes through the point $(-2,2)$.

touches means zero repeated twice!

The equation for $f(x)$ has one of the five forms shown below. Choose the appropriate form for $f(x)$, and then write the equation. You can assume that $f(x)$ is in simplest form.



- $f(x) = \dfrac{a}{x-b}$
- $f(x) = \dfrac{a(x-b)}{x-c}$
- $f(x) = \dfrac{a}{(x-b)(x-c)}$
- $f(x) = \dfrac{a(x-b)}{(x-c)(x-d)}$
- $f(x) = \dfrac{a(x-b)(x-c)}{(x-d)(x-e)}$

4:44 PM 10/20/2014

zeros: $-4,-4$

$y=\dfrac{a(x+4)(x+4)}{(x+6)(x+1)}$ to find a: plug in point $(-2,2)$

VA: $-6,-1$

$2=\dfrac{a(2)(2)}{4*-1}$ $a=-2$

ORRRRRR

$a=-2$ because..

HA: $y=-2$

The mass of a radioactive substance follows a *continuous exponential decay model*, with a decay rate parameter of 5.7% per day. Find the half-life of this substance (that is, the time it takes for one-half the original amount in a given sample of this substance to decay).

Note: This is a *continuous* exponential decay model.

$P=Qe^{rt}$ r=-5.7%=-5.7/100=-.057

Math 0:solver

0=P-Qe^(rT)

Q=100

P=50

r=-.057

T=guess

alpha enter

T=12.16..days

Solve for x.

$$3\ln(x+2)=12$$

by solver

math 0: solver

0=3ln(x+2)-12

x=guess(5)

x=52.59...

by intersection

xmax:60

y1=3ln(x+2)

y2=12

calc 5: intersect

x=52.59...

by hand....

divide by 3

ln(x+2)=4

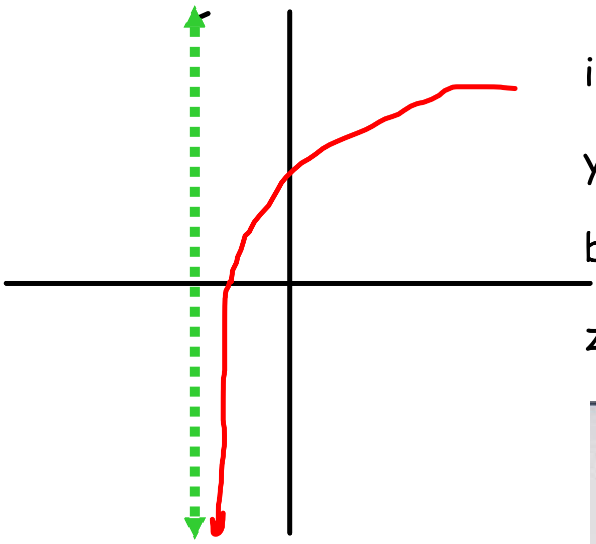
get rid of the ln

property 1:

e^(4)=x+2

x=e^4-2 =52.59..

Graph the function $g(x) = \log_2(x+1)+3$ and give its domain and range using interval notation.

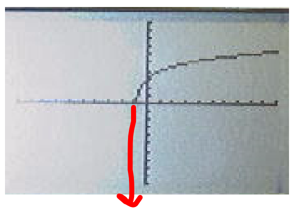


in calculator:

y1=log(x+1)/log(2)+3

by prop 4 the change of base

zoom 6:zoomstd



domain: (-1, ∞)

Range: all real