Please have p.296, apps worksheet, blank sheet of paper

Turn in: p.317, p.331, half sheet work sheet, p.296, apps worksheet, p.296, p.308, classwork for 3/11

2. $P = 200$

$$A = 200\left(1 + \frac{.0125}{12}\right)^{12(.5)}$$

$$2^{x+1} = 5^{1-2x}$$

$$\log_2 2^{x+1} = \log_2 5^{1-2x}$$

$$(x+1) = (1-2x)\log_2 5$$

$$(x+1) = \log_2 5 - 2x\log_2 5$$

$$x + 2x\log_2 5 = \log_2 5 - 1$$

$$x(1+2\log_2 5) = \log_2 5 - 1$$

$$x = \frac{\log_2 5 - 1}{1+2\log_2 5}$$

20 $5^{1-2x} = \frac{1}{5}$

$5^{1-2x} = 5^{-1}$

$1-2x = -1$

7. 10% $n = e$

$1000 = P$

1325 after 3

$A = Pe^{rt}$

$A = 1000e^{.1(3)}$

1 $y = a(1 \pm r)^t$

$y = 90000(1 + .03)^5$

2. $A = P\left(1+\frac{r}{n}\right)^{nt}$

$n=12$

$r=.0125$

$P=200$

$t=.5$

4. $A = Pe^{rt}$

$15000 = Pe^{(.05)(}$

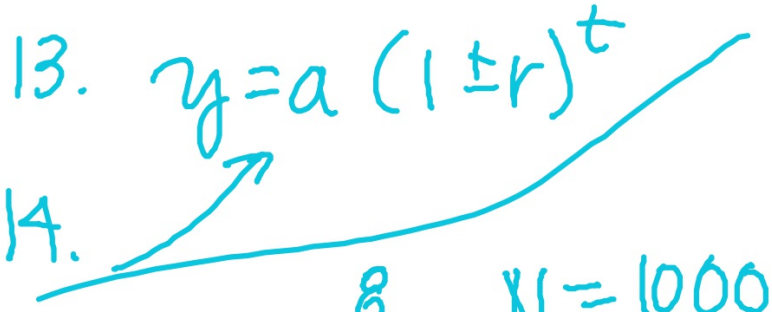
3. $A = Pe^{rt}$

6. $n=2$

$A = P\left(1+\frac{r}{n}\right)^{nt}$

13. $y = a(1 \pm r)^t$

14.



8. $N = 1000\, e^{.01t}$

$y = ce^{kt}$

10. $500 = c$

$y = 800$

$t = 1\text{ hr}$

$y = ce^{kt}$

$800 = 500e^{k(1)}$

$\frac{8}{5} = e^{k}$

$\ln\left(\frac{8}{5}\right) = \ln e^{k}$

$k = \ln\left(\frac{8}{5}\right)$

? $t = 5$

$y = 500e^{\ln\left(\frac{8}{5}\right)(5)}$

$2000 = 7600(1 - .0475)^t$

$\frac{2000}{7600} = .9525^t$

$\ln\left(\frac{20}{76}\right) = \ln .9525^t$

$\ln\left(\frac{20}{76}\right) = t(\ln .9525)$

$\frac{\ln\left(\frac{20}{76}\right)}{\ln(.9525)}$

$\log_4 7$

$\frac{\log(7)}{\log(4)}$

12. 70% — how old

time for ½ to remain

5730

$y = Ce^{kt}$

$.7 = 1e^{kt}$

$.7 = e^{-.00012096t}$

$\ln .7 = \ln e^{-.00012096t}$

$\frac{\ln .7}{-.00012096} = t$

2948 = t years

$5 = 10e^{k(5730)}$

$\frac{1}{2} = e^{5730k}$

$\ln \frac{1}{2} = \ln e^{5730k}$

$\frac{\ln \frac{1}{2}}{5730} = k$

$k = -.00012096$

.012096%

11. ↓ 900,000
800,000
1993 – 1995
1997

$y = a(1 \pm r)^t$

$8 = 9(1-r)^2$

$\sqrt{\frac{8}{9}} = \sqrt{(1-r)^2}$

$\sqrt{\frac{8}{9}} = 1 - r$

$\sqrt{\frac{8}{9}} - 1 = -r$

$\frac{\sqrt{\frac{8}{9}} - 1}{-1} = r$

$.05712 = r$

$r = 5.712\%$

$y = 900000(1 - .05712)^4$

14. $2008 \rightarrow 156{,}900$

$2014 \rightarrow 265{,}000$

$y = a(1+r)^t$

$265000 = 156900(1+r)^6$

$\sqrt[6]{1.688} = \sqrt[6]{(1+r)^6}$

$\ln(1+r)$

9. $A = A_0 e^{-0.087t}$

$5 = 10 e^{-.087t}$

$\frac{1}{2} = e^{-.087t}$

$\frac{\ln \frac{1}{2}}{-.087} = -.087t$

$t = 8$ days

③ $6250 - 1890$

$r = 2.75$

A) 1915

$y = 6250e^{.0275t}$

p296 #15

$y = ce^{kt}$

$1.2 = .6e^{k(2)}$

$y = .6e^{.346t}$

$2 = e^{2k}$

$\ln 2 = \ln e^{2k}$

$\frac{\ln 2}{2} = 2k$

$k = .346$

$k = 34.6\%$

9. $c = 16$

$k = .50$

$t = 1$ month

$$y = 16e^{.5t}$$

$$296 = 592\, e^{k(6)}$$

1. $y = 2 + e^{-x}$ — y-refl

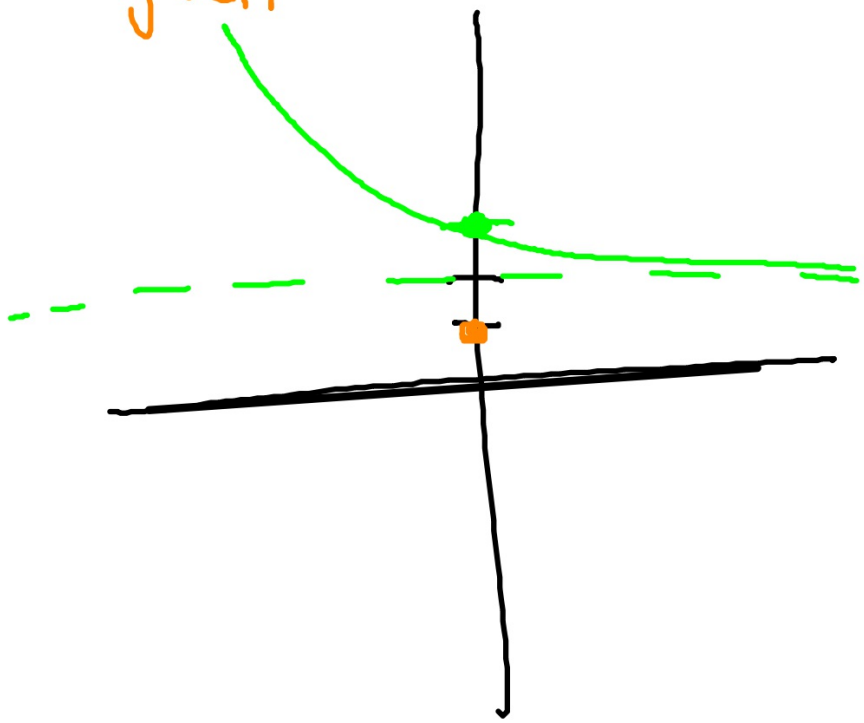
$u2$

HA: $y = 2$

KP: $(0, 3)$

D: $(-\infty, \infty)$

R: $(2, \infty)$



2. $f(x) = -e^{x+4}$

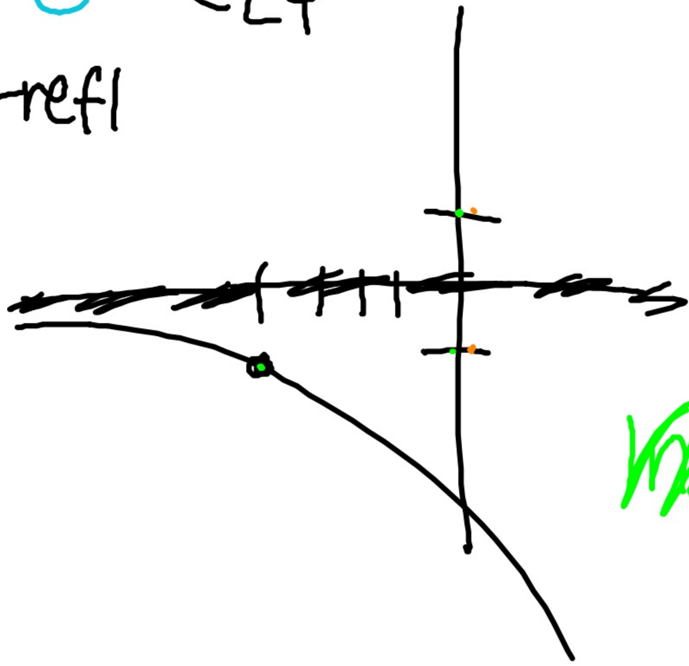
x-refl, L4

HA: $y=0$

KP: $(-4,-1)$

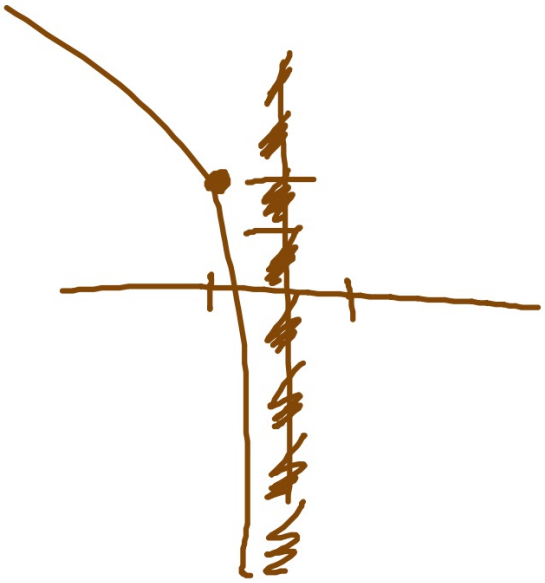
D: $(-\infty,\infty)$

R: $(-\infty,0)$



3 $f(x) = 2 + \log(-x)$

u2 yref1



VA: $x=0$

Kp $(-1, 2)$

D: $(-\infty, 0)$

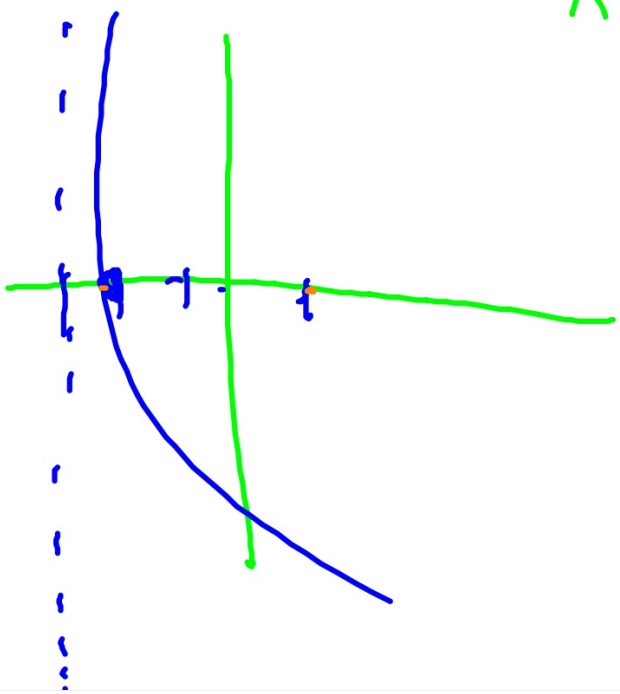
R: $(-\infty, \infty)$

4. $f(x) = -\ln(x+3)$

x-refl

$x+3=0$

$x=3$



VA: $x=-3$

KP $(-2, 0)$

D: $(-3, \infty$

R: $(-\infty, \infty)$

5. $\log_6 \frac{x\sqrt[3]{y}}{m}$

$\log_6 x + \frac{1}{3}\log_6 y - \log_6 m$

6. $\log_6 \frac{\sqrt{x} \cdot y^2}{p}$

$\sqrt{x} = x^{\frac{1}{2}}$

$\frac{1}{2}\log_6 x + 2\log_6 y - \log_6 p$

7. $2\ln y + \ln 5 - \frac{1}{3}\ln x$

$\ln y^2 + \ln 5 - \ln x^{\frac{1}{3}}$

$\ln\left(\frac{5y^2}{\sqrt[3]{x}}\right)$

8. $2\ln x + \frac{1}{2}\ln y - \ln 5 - \ln z$

$$\ln\left(\frac{x^2\sqrt{y}}{5z}\right)$$

9. $\log_2 16$

$\log_2 2^4$

4

10. $e^{\ln 2y}$

$2y$

11. $\log_{10} 10^1$

1

12. $\log_3 \frac{1}{27}$

$\log_3 \frac{1}{3^3}$

$\log_3 3^{-3}$

-3

13. $e^{\ln(7-y)}$

$7-y$

16. $\log 10$

1

14. $\log_4 \frac{1}{64}$

$\log_4 \frac{1}{4^3}$

$\log_4 4^{-3}$

-3

15. $\log_3 9$

$\log_3 3^2$

2

22. $4^{x^2} = 2^x$

$(2^2)^{x^2} = 2^x$

$2x^2 = x$

$2x^2 - x = 0$

$x(2x-1) = 0$

$x = 0$

$2x - 1 = 0$

$x = \frac{1}{2}$

38. $2^{x+1} = 5^{1-2x}$

$\log_2 2^{x+1} = \log_2 5^{1-2x}$

$x+1 = (1-2x)\log_2 5$

$x+1 = \log_2 5 - 2x\log_2 5$

$+2x\log_2 5 - 1 \quad -1 \quad +2x\log_2 5$

$x + 2x\log_2 5 = \log_2 5 - 1$

$x(1+2\log_2 5) = \log_2 5 - 1$

$$x = \frac{\log_2 5 - 1}{1+2\log_2 5}$$

13. $7600 \rightarrow 4.75\% \downarrow \rightarrow 2000$

$$2000 = 7600(1-.0475)^t$$

$$\frac{20}{76} = (.9525)^t$$

$$\ln\left(\frac{20}{76}\right) = t\ln(.9525)$$

$$\frac{\ln\left(\frac{20}{76}\right)}{\ln(.9525)}$$