Exponential Functions Quiz – October 2012 NAME:

1) Simplify the expression $\left(xy^4\right)\left(2x^4y\right)^{-3}$. Your answer should contain only positive exponents.

(K3, C1)

2) Evaluate the exponential expression $3^{-2}+\left(\frac{1}{4}\right)^{0}-\left(\frac{1}{2}\right)^{-1}$. Show all key steps that lead to your final answer. If your final answer has fractions, these fractions must be written in simplest form.

(K3, C1)

3) Evaluate $y=\frac{1}{4}\times 2^{x+2}$ if $x=3$ Show the key steps that lead to your final answer.

(K2)

4) Solve the equation $9=\frac{1}{9}\times 3^{1-x}$ for x . Show the key steps that lead to your final answer.

(K3)

Exponential Functions Quiz – October 2012 NAME:

5) The following multiple choice questions involve $y = 3(1.2)^x - 4$. Select the best answer(s) for each question.

a) The range is:

(A1)

i) All numbers
ii) All positive numbers
iii) All numbers greater than -4
iv) All numbers greater and equal to -4
v) All numbers greater than 3

b) The domain is:

(A1)

i) All numbers
ii) All positive numbers
iii) All numbers greater than and equal to 0
iv) All numbers greater than -4
v) All integers

c) The y-intercept is:

(A1)

i) $y = 1$
ii) $y = -4$
iii) There isn't one because of the asymptote.
iv) $y = 1.45$
v) $y = -1$

d) The equation of the asymptote is:

(A1)

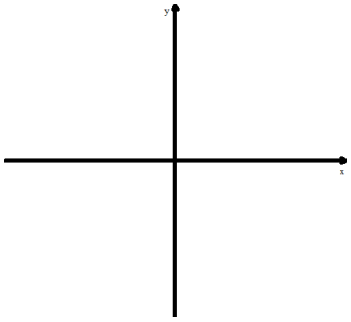
i) There is no asymptote in this function
ii) $y = -4$
iii) $y = -3$
iv) -4
v) $y = 0$

e) The x-intercept is:

(A1)

i) $x = -1.11$
ii) There isn't one because of the asymptote
iii) $y = 1.58$
iv) $x = 1.58$
v) $x = -1.58$

f) A sketch of its graph (label intercepts & asymptote):



(C4)

6) a) Solve the equation $9^{1-\frac{1}{2}x} = \left(\frac{1}{27}\right)^{x-1}$ algebraically.

(K4)

b) Provide a verification of your solution using any method.

(T2)

Exponential Functions Quiz – October 2012 NAME:

7) Mr. Santowski bought a car in 2006 and the value of his car has been depreciating over the years. The value of his car, compared to the years since he bought the car in 2006, is tabulated below:

x (years since 2006)	0	1	2	3	4	5	6
y (value of the car	50,000	46,000	42,320	38,934	35,820	32,954	30,318

a) Determine an equation that can be used to model the relationship between the value of his car and the number of years he has owned the car. Show the work or the analysis that leads to your equation.

(A3)

b. State and **explain** a reasonable domain for this model.

(A1, C1)

c. State and **explain** a reasonable range for this model.

(A1, C1)

d. What will be the value of his car in 2015?

(A2)

e. Mr. S will sell his car when the car has value has decreased by 45,000. He would like to GRAPHICALLY determine in what year he should sell the car. **What window settings** should he use on the TI-84 in order to determine the solution graphically?

Xmin	Xmax	Ymin	Ymax

(T2)