Financial Algebra
Summer Assignment

Properties of Exponents:

1. Whole number exponents: = · · · ... · (n factors of x)

2. Zero exponents: $^{0} = 1, \neq 0$

3. Negative Exponents: $^{-} = \frac{1}{}$

4. Radicals (principal nth root): $\sqrt{} = \rightarrow =$

5. Rational exponents: $^{1/} = \sqrt{}$

6. Rational exponents: $^{/} = \sqrt{}$

Operations with Exponents:

1. Multiplying like bases: $= ^{+}$

2. Dividing like bases: $\frac{}{} = ^{-}$

3. Removing parentheses: $(\ )\ =$ $(-)\ = \frac{}{}$ $(\ )\ =$

$^{-} \cdot ^{-}$ $\frac{^{-}}{^{-}}$ $(\frac{}{^{-}})$

Special Products and Factorization Techniques

Quadratic Formula:

$$^{2} + + = 0 \rightarrow = \frac{- \pm\sqrt{^{2} - 4}}{2}$$

$- - =$ $- + + =$

Special Products:

$$^2 - \quad ^2 = (\quad - \quad)(\quad + \quad)$$

$$^3 - \quad ^3 = (\quad - \quad)(\quad ^2 + \quad \quad + \quad ^2)$$

$$^3 + \quad ^3 = (\quad + \quad)(\quad ^2 - \quad \quad + \quad ^2)$$

− − +

− + − − + − −

Binomial000020 [(−)]TETQ EMC /P <</MCID 10>> BDC q0.00000912 0 612 792 reW* nBT/F1 11.04 Tf1 0 0 1 72.02.5 63

Lines

Slope: $\frac{2-1}{2-1}$

Slope Intercept Form: y = mx + b

Standard Form: ax + by = c

Point-Slope Form: $y - y_1 = m(x ς x_1)$

Transformations

Vertical Translations: $= \ (\ ) \pm$

Horizontal Translations: $= \ (\ \pm \ )$

Y-axis flip: $= \ (- \ )$

X-axis flip: $= - \ (\ )$

$(\ ) = - \quad +$ $(\ ) = |- \ | -$ $(\ ) = \sqrt{\ -\ }$

Functions

Domain: a set of all possible values for the independent variable

Range: a set of all possible values for the dependent variable

$= \sqrt{\quad + \quad}$ $= \frac{-}{+}$ $= \{ \begin{matrix} - \quad , & < 1 \\ \sqrt{\quad - \quad} , & \geq \end{matrix}$

Even and Odd Functions:

$(- \quad) = - \quad (\quad),$

$(- \quad) = \quad (\quad),$

$=$ $= \quad +$ $=$

End Behavior:

-If the degree of f is even and the lead term coefficient is positive, then the left and right ends of the function both approach positive infinity.

-If the degree of f is even and the lead term coefficient is negative, then the left and right ends of the function both approach negative infinity.

-If the degree of f is odd and the lead term coefficient is positive, then the left end approaches negative infinity and the right end approaches positive infinity.

-If the degree of f is odd and the lead term coefficient is negative, then the left end approaches positive infinity and the right end approaches negative infinity.

$(\quad) = - \quad + \quad -$ $(\quad) = \quad - \quad + \quad -$ $(\quad) = \quad -$

Functions

( ) = − +

( ) = ( ) = (+) =

( ) = − ( ) = +

( ) · ( ) (( )) (( ))

Inverse Functions

In order to calculate an inverse of a function algebraically, you must switch all of the x and y variables and solve the new equation for y. The inverse only exists if the resulting equation is a function.

( ) = + ( ) = − ( ) = $\sqrt{\ \ +\ \ }$

Logarithms

Natural Logarithmic Function:

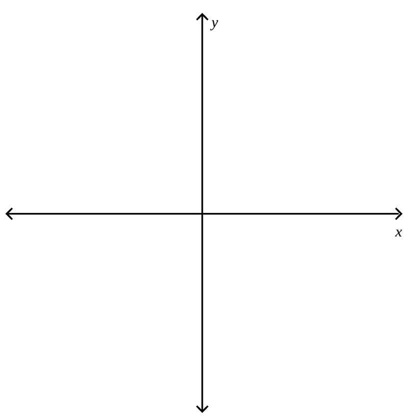
$=$ $\qquad$ $=$

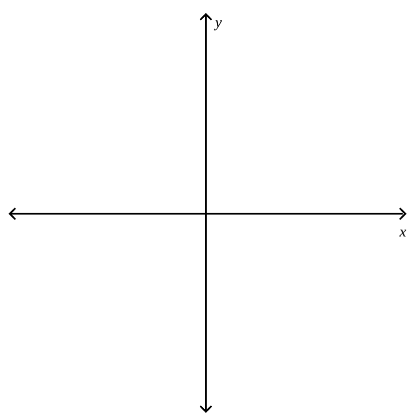
Inverse Properties of Logarithms:

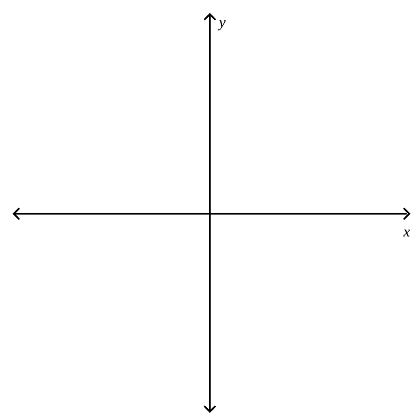
$=$ $\qquad$ $=$

$+ \cdot =$ $\qquad$ $+ \quad =$

$(\ ) = \quad (\ - \ ) +$ $\qquad$ $(\ ) = - \ + \ ^{+}$ $\qquad$ $(\ ) = \{ \ +\ ,\ < 1;\ ^{-}\ ,\ \geq$







Properties of Logarithms

Product Property: + = ( )

Quotient Property: − = (−)

Power Property: = ·

47) + − −[(+) + − (−)]