Review: 1) Lombine logacithms 1092 (Y-6) +1092 X=4 (3) APPLY Product rule -> 109(a)+109(b)=108 (a-b) 1092 (CX-1) - X]] = 4 a=x-6 2 (x-6)·x 1092 (22-6x)=4 (3) convert to exporation form: 1006 Cx J= Y 1092 (k2-6x)=4 x2-6x-34=0 x2-6x-16=01 $2^{4} = \chi^{2} - b \times$ (x-8)(x+2) -8452-6 (4) Find the Zeroes (8+x)(8-x) (X-8)=0 5 Chekk Solutions FOR X-9: 1092 (8-6) = 1092 (2) Degative nombers make log term underinez is x=8 is the only right answer Transformations of exponential/Logarithmic functions: (1) exponention Functions: $y = a \cdot b = (x-i) + C$ ra= resticol stutch scompussion b = base of exponential function K= horizontal Stretch/compression d= horizontal shift -71ight/1cft C= Vestical Shift -> (UPIdown) (1) a > 0 and b > 1 - > Glowth function (increases as x increases) (2) and orbein-1. Delay function (dellesses as x inlieuses) (3) a 20 and b>1 -> Reflected growth function (4) 020 02661-> Reflecte decay function Fry attributes: -> Horizontal asymptote (Y=C) -> Y-int Esct x=0 und solve for y) Horrizondal asxmptote: Y=0 ~70 Horizontal asxmptate: Y=0 H. A= Y=0 Y=-2-X H. A= 0 Examples; (1) + (2) = (2) (-5)3 the x) the Compression of Gracial Medians:

(D) Horizontally compressed by factor, of k=3 $\frac{3(x-1)^{72}}{3}$ $\frac{1}{3}(x-1)$ k>1 - > compression $\frac{1}{3}$ $\frac{1}{3}$ Transformations: (3) Veltically Shirtles down by 5 C XQI) $\gamma = -5$ Logarithanic Functions, XHI 7 = a. 1090 (12(x - 2)) + [Ecy Features. (1) vertical asymptote: X=d (Shifted From X=0) (2) x-int = Set x=0 and solve 4-6 Example: () f(x)===00000 +x) +(2) -> c Transtormations. Detlects about the x-axis 3) Stutches Vertically by Factor of 4 - > a 3) Vertical Shift upword by 2

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LOGARITHMIC FUNCTIONS PART 4

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