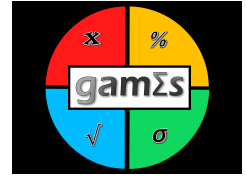
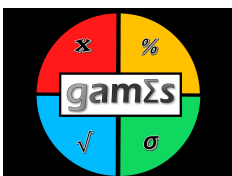


GAMES Practice Problem Solutions – Growth of Functions



- No, $G(t)$ is not exponential. It can be written as $G(t) = 3^4 t^4$ which is not of the form $G(t) = ab^t$.
- $Q = 65 * (\frac{1}{2})^t$; thus the initial value = 65 and the growth factor is $\frac{1}{2}$.
- $27 = 3^3$
- $\frac{1}{2} \log(B) + \log(A^3)$ or $\log(A^3 \sqrt{B})$ or $\frac{1}{2} \log(B) + 3 \log(A)$ or $\log(A) + \log(A^2) + \frac{1}{2} \log(B)$
- approximately 21 days
- 2500
 - 2.77 i.e. 3 days
- 15 grams
 - 0.0204 i.e. 2.04%
 - 13.254,
 - $t = \frac{3 \ln(Q/15)}{\ln(0.94)}$, $f^{-1}(6) = 44.426$
- 0.02207 i.e. 2.207% per year
- $\lim_{x \rightarrow \infty} \frac{7e^x}{2x^3} = \lim_{x \rightarrow \infty} \frac{7e^x}{6x^2} = \lim_{x \rightarrow \infty} \frac{7e^x}{12x} \lim_{x \rightarrow \infty} \frac{7e^x}{12} = \infty$.
 - $\lim_{x \rightarrow e} \frac{e-x}{\ln(x)-1} = \lim_{x \rightarrow e} \frac{-1}{1/x} = -e$
- $\lim_{x \rightarrow \infty} 7x - 7 \ln x = \lim_{x \rightarrow \infty} \frac{7-7(1/x) \ln x}{1/x} = \infty$
 - $\lim_{x \rightarrow \infty} 6xe^{1/x} - 6x = 6 \frac{e^{1/x}-1}{1/x} = 6$



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