King **F**ahd **U**niversity for **P**etroleum and **M**inerals
Department of Mathematics & Statistics
Term 163 Math 101 (01) Quiz#4 (3.6, 3.7 & 3.9)
Family Name: S.r#

Q1. Find $\left.\frac{dy}{dx}\right|_{x=1}$ if $y = 3^{\log_2 x} + \log_2 3^x$

Q2. The position of a particle is given by $S(t) = 2t^3 - 9t^2 + 12t$ (t in sec. and S in meters). Find the total distance travelled during the first 3 seconds.

Q3. Evaluate $y'(\pi)$ if $y = x^{\cos x} + \frac{1}{\pi^2}$

King **F**ahd **U**niversity for **P**etroleum and **M**inerals
Department of Mathematics & Statistics
Term 163 Math 101 (11) Quiz#4 (3.6, 3.7 & 3.9)
Family Name: S.r#

Q1. Find $\lim_{x\to 1}\dfrac{\ln(x^2+e^x-1)-1}{x-1}$

Q2. Suppose that x is increasing at a rate of 2 cm/min and y is decreasing at a rate of 5 cm/min. If $\dfrac{1}{z}=\dfrac{1}{x}+\dfrac{1}{y}$, find the rate of change of z when $x=2\,\text{cm}$ and $y=1\,\text{cm}$.

Q3. Find $y'(1)$ if $y=(4+\ln x)^{\sin(x-1)}$