

Math 220 – Business Calculus

Spring 2013 Quiz 7

Topic Investments & Improper Fractions, Domains

1. Money is invested in a bank at a rate of \$700 per year for 8 years at a rate of 3%. How much will be in the bank at the end of that time?

2. Find this integral: $\int_1^{\infty} \frac{3}{4x^5} dx = \lim_{v \rightarrow \infty} \int_1^v \frac{3}{4x^5} dx = \lim_{v \rightarrow \infty} -\frac{3}{4} \left(\frac{1}{4x^4} \right) \Big|_1^v$

3. Find and plot the domain of this function: $= \lim_{v \rightarrow \infty} \left(-\frac{3}{16v^4} + \frac{3}{16} \right)$

$$f(x, y) = \sqrt{y - x^2} \quad \begin{array}{l} y - x^2 \geq 0 \\ y \geq x^2 \end{array} \quad = \frac{3}{16}$$

4. Find the partial derivatives, $\delta f / \delta x$ and $\delta f / \delta y$ of this

function: $f(x, y) = 3x^2y^4 + e^{xy}$

$$\frac{\partial f}{\partial x} = 6xy^4 + (e^{xy})y$$

$$\frac{\partial f}{\partial y} = 12x^2y^3 + (e^{xy})x$$

$$\textcircled{1} \quad e^{(.03)8} \int_0^8 700 e^{-.03t} dt =$$

$$e^{(.03)8} \left. \frac{700 e^{-.03t}}{-.03} \right|_0^8 =$$

$$\frac{700 e^{(.03)8}}{-.03} (e^{-(.03)8} - e^0)$$

④

