Math 477 "QUIZ" for Lecture 21

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. The value of a piece of factory equipment after two years of use is $10(0.2)^X$, where X is a random variable having moment generating function

$$M_X(t) = \frac{1}{1-3t} \quad , \quad for \quad t < \frac{1}{3} \quad .$$

Calculate the expected value of this piece of equipment after two years of use.

2. X and Y are independent random variables with common moment generating function $M(t) = e^{t^4}$.

Let $W = 2\,X + Y$ and $Z = Y - X$.

Determine the joint moment generating function, $M(t_1, t_2)$ of W and Z.