QUIZ 8 - MATH 111   Thursday, November 2

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] A quantity y is varying directly with the square root of x and with the cube of w and inversely with the cube root of z. When $x = 9$, $w = 1$ and $z = 8$, then $y = \frac{15}{2}$. Find the value of z when $x = 1$, $w = 3$ and $y = 9$.

2. [4 points] A certain quantity is measured every minute and it is found that it growing exponentially. The first measurement of the quantity was 3, whereas two minutes later it had increased to $\frac{75}{16}$.

   (a) Find a model $Q(t)$ for the quantity in terms of time.

   (b) Estimate the value of the quantity one minute before measurements began.

3. [2 points] Find a formula $y = f(x)$ for an exponential function whose graph is shown below. Justify all steps.