

1. (12 points) Evaluate each of the following:

a.  $\lim_{x \rightarrow \infty} \left(1 + \frac{4}{x}\right)^{2x}$

b.  $\int \frac{5x^2 - 6x + 12}{(x-3)(x^2+4)} dx$

2. (8 points) A ball is dropped from a height of 12 feet and each time it hits the ground it bounces up to a height of two thirds of the previous height. Find the total distance traveled by the ball.