MATH 1B Fall 2015
Section 1 Name: _____

These are review problems for MATH 1A, so if you have taken it, you should not have any problems doing them. Good luck!

1. $\lim_{x\to -2} \dfrac{x^3+8}{x+2} =$

2. $\lim_{x\to \infty} x \sin \dfrac{1}{x} =$

3. $\lim_{x\to 0} e^{\sin 3x/2x} =$

4. State the $\delta - \epsilon$ definition for the following conditions:
(a) $\lim_{x\to a} f(x) = L$ (b) $\lim_{x\to a^-} f(x) = -\infty$

5. A curve passes through the point $(0, 5)$ and has the property that the slope of the curve at every point P is twice the $y-$coordinate of P. What is the equation of the curve?

6. Let f be an invertible function such that $f'(x)^2 = f(x) + 3$. Let $g(x)$ denote the inverse of $f(x)$. Find $g'(x)$.

7. Find

(a) $\displaystyle\int \frac{\sin x}{1+\cos^2 x}\, dx$ (b) $\dfrac{dx}{x\sqrt{1-(\ln x)^2}}$ (c) $\displaystyle\int_1^{13} \frac{dx}{\sqrt[3]{(27-2x)^2}}$

8. Find

$\lim_{x\to\infty} \displaystyle\int_x^{x^2} e^{-t^2}\, dx$