

AP:

Homework

2/5 – 2/9

due: Tuesday: read pg. 172

1. pg. 178 / #1, 4, 5, 7, 8, 9
2. Find y' :
 - a. $y = e^{-3x^2}$
 - b. $y = \frac{e^{2x}}{x^2}$
 - c. $y = \ln\left(\frac{e^{4x}-1}{e^{4x}+1}\right)$
 - d. $y = x^5 \cdot e^{-3\ln x}$
 - e. $y^2 e^{3x} + xy^3 = 1$
3. Evaluate: a. $\lim_{x \rightarrow \infty} e^{-x}$ b. $\lim_{x \rightarrow -\infty} e^{-x}$ c. $\lim_{x \rightarrow -\infty} \ln(2 + e^x)$
4. Find the linearization of $f(x) = x + e^{4x}$ at $x = 0$.
5. A particle moves along the x-axis according to the law of motion $s = te^{2t}$. Find the velocity of the particle at time $t = 2$.

Wednesday:

1. Evaluate:
 - a. $\int e^{2-5x} dx$
 - b. $\int 7x^2 e^{2x^3} dx$
 - c. $\int \frac{1+e^{2x}}{e^x} dx$
 - d. $\int e^{3x} \cdot e^{2x} dx$
 - e. $\int \frac{e^{3x} dx}{(1-2e^{3x})^2}$
 - f. $\int_{-1}^0 e^{|x|} dx$
 - g. $\int 2e^x \cos(e^x) dx$
 - h. $\lim_{x \rightarrow \infty} \int_x^{2x} \frac{1}{t} dt$
2. pp. 338-33 / #66, 74

Thursday:

1. Write an equation of the tangent line to the curve $y = \ln\sqrt{x}$ at the point where $x = e$.
2. At each point (x, y) on a certain curve, the slope of the tangent line to the curve is $4xy$. If the curve contains the point $(0, 4)$, write an equation of the curve.
3. Find the average value of the function $f(x) = xe^{5x^2}$ on the interval $[1, 4]$.
4. Find the area of the region bounded by $y = e^x$, $y = 1$, and $x = 2$.
5. A particle moves along the x-axis so that at any time t its position is given by $x(t) = te^{-2t}$. For what values of t is the particle at rest?
6. The base of a solid is the region enclosed by the graph of $y = e^{-x}$, the coordinate axes, and the line $x = 3$. If all plane sections perpendicular to the x-axis are squares, find the volume of the solid.
7. Find the maximum and minimum values of the periodic function $f(x) = e^{\sin x}$.
8. Solve the differential equation $\frac{dy}{dx} = (\cos x)e^{\sin x}$ given $y = 0$ when $x = 0$.

on: Friday: test