

Discussion Problems for Math 180

Thursday, April 9, 2015

Review – take no more than five minutes per question.

1. What is $1 + 2 + 3 + 4 + \cdots + n$?
2. State the chain rule.
3. Find derivatives:

(a) $\arctan(x^3 - 3x^2 + 5x - 1)$

(b) $\sqrt{1 - \sin(x)}$

This time

4. Consider the function $f(x) = x^2 - 2x$ with domain $[-7, 5]$.
 - (a) Sketch a graph of this function.
 - (b) Sketch graphs illustrating each of the following:
 - i. A left Riemann sum with 4 rectangles.
 - ii. A right Riemann sum with 4 rectangles.
 - iii. A left Riemann sum with 6 rectangles.
 - iv. A right Riemann sum with 6 rectangles.
 - (c) Calculate each of the sums from part (b).

5. Find antiderivatives:

(a) $5 \sin(x)^4 \cos(x)$

(b) $\frac{1}{3 \sin(x) - 2} \cdot 3 \cos(x)$