Calculus 1B - Answers to SSS exercises, week 1

1. 1.1 $F_1(x) = -x^{-2} + C$

   1.2 $F_2(x) = \frac{1}{2}x^{-2} + \frac{1}{4}x^4 - x + C$

   1.3 $F_3(x) = \frac{2}{5}\ln|x| + C$

   (Or: $F_3(x) = \frac{2}{5}\ln|5x| + C$)

   1.4 $F_4(x) = x + \frac{4}{3}\ln|x| + \frac{1}{x} + C$

   (Or: $F_4(x) = x + \frac{4}{3}\ln|3x| + \frac{1}{x} + C$)

Calculus 1B - Answers to SSS exercises, week 1

2. 2.1 -

   2.2 Using two rectangles: $\frac{7}{32} \approx 0.2188$

   Using four rectangles: $\frac{31}{128} \approx 0.2422$

   2.3 $\lim_{n\to\infty} \sum_{k=1}^{n} \frac{k^3}{n^4}$

   2.4 $\frac{1}{4}$

   2.5 $\frac{1}{4}$ (Why is this the same as the answer to 2.4?)

Calculus 1B - Answers to SSS exercises, week 1

3. 3.1 $3x^2$

   3.2 $3\sin^2 x \cos x$

   3.3 $\dfrac{-1}{x^4+1}$

   3.4 $\dfrac{-\cos x}{\sin^4 x+1}$

Calculus 1B - Answers to SSS exercises, week 1

4. 4.1 $2 + \frac{\pi}{2}$

   4.2 $4 - \frac{\pi}{2} \approx 2.42$

   4.3 $\frac{\pi}{2} - 4 \approx -2.42$