

بسم الله الرحمن الرحيم

Math 111

Text book: Calculus, Early Transcendental Functions, 3rd edition By Robert T. Smith and Roland B. Minton

4.1 All except Example 1.12

4.2 Examples 2.1, 2.2 and 2.3. Theorem 2.1 and Theorem 2.2 Example 2.4

4.3 From page 362 to page 365 except Example 3.4

4.4 Definition 4.1, Example 4.2, Theorem 4.1, Theorem 4.2, Example 4.6, Theorem 4.3, Theorem 4.4 (with its proof) and Example 4.8

4.5 Theorem 5.1 (with its proof), Remark 5.1, From Example 5.1 to Example 5.6, Theorem 5.2 (with its proof), Examples 5.7, 5.8 and 5.9

4.6 All

4.7 Midpoint Rule: Example 7.1, **Trapezoidal Rule:** Example 7.5, **Simpson's Rule:** Example 7.6

4.8 All with the proofs of Theorem 8.1 and Theorem 8.2, except Example 8.3

Derivatives and Integrals of Hyperbolic functions: from Calculus 6th edition, by Swokowski, Olinick and Pence, from **page 591**, Definition 6.41, graphs of sinh and cosh. Theorem 6.42 (with its proof), Definition 6.43, Theorem 6.44, Theorem 6.45 (with its proof), Example 1, Theorem 6.46, Example 3. Theorem 6.47 (with its proof). Theorem 6.48 (with its proof), Example 4, Theorem 6.49, Example 5 and Example 6.

6.1 All with the following example $\int_1^2 \frac{dx}{\sqrt{4x-x^2}}$

6.2 All

6.3 All + Reductions formulas for $\int \sec^n x dx$, $\int \cos^n x dx$ and $\int \sin^n x dx$.

6.4 Examples 4.2, 4.3, 4.4, 4.5. (Examples 4.1 and 4.6 left for the student)

6.6 Discussion the Integral in page 546. From Definition 6.1 to Example 6.13

5.1 Examples 1.1, 1.2 and Example 1.3 but in this example replace $y=x^2$ by $y=\sin x$ in $[0, \frac{\pi}{2}]$. Also Examples 1.4, 1.5 and 1.6

5.2 Examples 2.4, 2.5 and Example 2.6 (only around x, y axis) i.e. without part c. Example 2.7(part a)

5.3 Example 3.1, Example 3.3 (but around the lines $x=0$ and $y=0$), Example 3.4(replace $y = x^2$ by $y = \sin x$ in $[0, \frac{\pi}{2}]$ around y-axis)

5.4 Example 4.2 (by Trigonometric Substitution). The following example which is taken from 102 Math text book ((مبادئ التفاضل والتكامل الجزء الثاني مثال (23 7)) $y = \ln(\cos x)$ from $x = 0$ to $x = \frac{\pi}{4}$. Example 4.5 but replace $y=x^4$ by $y=x^3$.

9.1 Examples 1.1, 1.3, 1.4, 1.5, 1.6 and 1.7

9.4 Examples 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6. Then we give formula (5.6) in page 758, after that we sketch the following Examples and then find the area as follows:

Example 4.7 find the area when $0 \leq \theta \leq \pi$

Example 4.9 find the area when $0 \leq \theta \leq \frac{\pi}{2}$ and $\frac{\pi}{2} \leq \theta \leq \pi$

Example 4.12 find the area when $0 \leq \theta \leq \frac{\pi}{2}$. Remark the students that the area of one leaf of a

Three-Leaf rose $r = \sin 3\theta$ is when $0 \leq \theta \leq \frac{\pi}{3}$.

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