

Math 2423 homework

17. (3/22) 6.5 # 1-8 (as many as needed), 9, 10, 14
18. (3/22) For a certain (continuous) function f , the average value of f on any interval $[0, x]$ is x^5 . Use the Fundamental Theorem of Calculus to find f .
19. (3/22) 7.1 # 23, 24, 26, 28-30
20. (3/22) Let $\sin^{-1}(x)$ be the inverse of the function $f(x) = \sin(x)$, $-\pi/2 \leq x \leq \pi/2$.
 1. Find the domain and range of $\sin^{-1}(x)$.
 2. Sketch the graph of $\sin^{-1}(x)$.
 3. Calculate $\frac{d}{dx}(\sin^{-1}(x))$, and write the corresponding indefinite integral formula.
 4. Calculate $\int \frac{1}{\sqrt{1-4x^2}} dx$, $\int \frac{1}{x\sqrt{x^4-1}} dx$ (write the denominator as $x^3\sqrt{1-\frac{1}{x^4}}$ and substitute, and $\int \frac{1}{\sqrt{x-x^2}} dx$ (complete the square for x^2-x and manipulate the denominator into the form $\sqrt{1-u^2}$).
21. (3/22) 7.2 # 9-14, 23-28, 29-42, 48, 71-78
22. (3/22) 7.3 # 9-18, 30-38, 51-58, 61-66
23. (3/22) 7.4 # 1-34 (as many as needed), 39-49 odds, 51-53, 58, 65-76, 82
24. (4/5) 7.5 (For the "as many as needed" problems, do only those involving $\sin^{-1}(x)$ or $\arcsin(x)$, $\cos^{-1}(x)$ or $\arccos(x)$, and $\tan^{-1}(x)$ or $\arctan(x)$) # 1-14 (as many as needed), 22-35 (as many as needed), 36-40, 43-50, 59-70 (as many as needed), 71-73, 77-78
25. (4/5) 7.6 # 1-4, 7-11, 16, 17, 22(a), 30-41 (as many as needed), 51-54, 55-60
26. (4/5) 7.6 # 5, 6, 43-47, 61-63
27. (4/12) 7.7 # 10, 11, 13, 19, 25, 31, 39-46, 53-55, 57-60, 85-86, 90
28. (4/12) 8.1 # 3, 7, 8, 11, 13, 17, 18, 25, 26, 28, 46, 48, 55-59