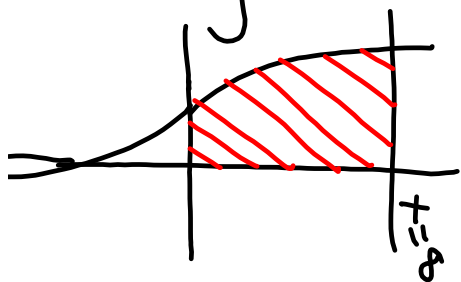


Textbook Problems:

- 3.9 #5, 9; 11 19 odd; **37**, 45, 49
- 4.1 #**3 31** odd; **35-41** odd; **53**, 67, **75**, ~~55-61~~ odd; 83
- 4.2 #7-**23** odd; **33-41** odd, **45, 51**, ~~27-37~~ odd; 41, 43, 47, 53
- 4.3 #7, 17, 37, 43, 45, **47**
- 4.4 #13, 15, 23, 31, **33**
- Quiz Today
- Thursday - class will be held in A101 (bring Review Problem sheet)
- Friday - class is cancelled
- **TEST #1 - Wed. 11/30**

4.4 find area of region bounded by...

42. $y = 1 + \sqrt[3]{x}$, $x = 0$, $x = 8$, $y = 0$



$$\text{area} = \lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{8}{n} \cdot (1 + \sqrt[3]{c_i})$$

$$= \int_0^8 (1 + \sqrt[3]{x}) dx$$

$$x + \frac{3}{4} x^{4/3} \Big|_0^8 = 8 + \frac{3}{4} (3\sqrt{8})^4 = \boxed{20}$$

4.3 ~~calculate using limit def.~~

$$\begin{aligned}
 6. \int_1^3 3x^2 dx &= \lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{2}{n} \cdot 3 \left(c_i \right)^2 \\
 &= X^3 \Big|_1^3 \\
 &= 27 - 1 = \boxed{26}
 \end{aligned}$$

Width of Interval $\frac{b-a}{n} = \frac{3-1}{n}$
 $1 + \frac{2}{n}i$ right hand endpoint
 any + value

4.2

$$40. \lim_{n \rightarrow \infty} \sum_{i=1}^n \left(\frac{2i}{n} \right) \left(\frac{2}{n} \right)$$

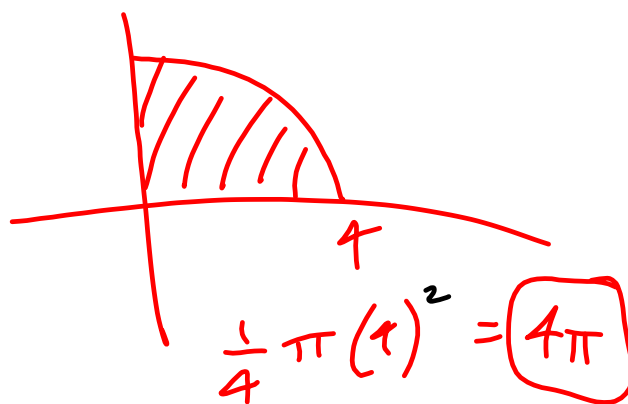
$$\begin{aligned}
 &= \lim_{n \rightarrow \infty} \frac{4}{n^2} \sum_{i=1}^n i = \lim_{n \rightarrow \infty} \frac{4}{n^2} \cdot \frac{n(n+1)}{2} \\
 &= \boxed{2}
 \end{aligned}$$

$$60. f(y) = 4y - y^2, \quad 1 \leq y \leq 2$$

$$\begin{aligned} & \int_1^2 (4y - y^2) dy \\ &= \left. 2y^2 - \frac{1}{3}y^3 \right|_1^2 = \\ &= \left[2(2)^2 - \frac{1}{3}(2)^3 \right] - \left[2(1)^2 - \frac{1}{3}(1)^3 \right] \\ &= 8 - \frac{8}{3} - 2 + \frac{1}{3} \\ &= 6 - \frac{7}{3} = \frac{18}{3} - \frac{7}{3} = \frac{11}{3} \end{aligned}$$

area bounded by $x=0$; $y=0$;
& $x=4$ & $y=\sqrt{16-x^2}$

$$\begin{aligned} & \int_0^4 \sqrt{16-x^2} dx \\ & x^2 + y^2 = 4^2 \\ & y^2 = 16 - x^2 \\ & y = \pm \sqrt{16-x^2} \end{aligned}$$



$$y = x(1 - \cos x)$$

$$dy = \left[1(1 - \cos x) + x(\sin x) \right] dx$$