MATH 261 — *THE CLASSIC EDITION*

Homework

Section	Page	Problems
1.1	12	1, 3, 5, 11, 15, 19, 21, 23, 33, 35, 37, 39, 41, 43, 45, 47, 51, 56 $(Hint:\ top\ half\ of\ y^2 = 4 - x^2)$, 57, 58, 60, 61, 63, 64, 65, 67, 69, 75
1.2	23	odd 1 – 9; 13, 25, 26, 33, 35, 45, 53, 57
1.3	37	1, 3, 7, 9, 11, 21, 22, 23, 25, 27, 29, 31, 57, 59, 61, 65, 67 Find all solutions on the interval $[0,\ 2\pi]$: $2sin\ t\ +\ 5\ = 4$; $4sin^2\theta\ -1\ = 0$; $sin^2\theta\ -\ 3sin\ t\ +\ 2\ =\ 0$; $\sqrt{3}\ sec\theta\ +\ 2\ =\ 0$; $cos3\theta\ =\ \frac{1}{2}$.
2.1	48	1, 9, odd 11 – 49
2.2	57	7, 8, 17, 18, 19, 31, 33, 35 (Do 31, 33, 35 by picture). $Prove$: $\lim_{x \to 2} \frac{2x^2 - 5x + 2}{x - 2}\ =\ 3$.
2.3	66	1, 7, 9, 13, 21, 23, 27, 29; odd 33 – 41, odd 49 – 55, 63, 65
2.4	76	odd 1 – 41, $except$ for 25
2.5	85	odd 1 – 15; odd 19 – 27; 31, 39 Let $f(x)\ =\ c^2x$ if $x\ <\ 1$ $3cx\ -\ 2$ if $x\ \geq\ 1$ Determine all values of c so that f is continuous on $\mathbb{R}$. Suppose $f(x)\ =\ c$ if $x\ =\ -\ 3$ $\frac{9 - x^2}{4 - \sqrt{x^2 + 7}}$ if $-3\ <\ x\ <\ 3$ Solve for c and d so it is continuous on $[-3,\ 3]$. d if $x\ =\ 3$; $f(x) = x^3 + x - 6$ has a 0 between 1 and 2. Estimate it to the nearest tenth $(Answer\ 1.6)$.
3.1	97	1, 2, 5, 7, 9, 11, 13, 15, 16, 17, 19
3.2	107	Odd 1 – 21; 31, 32, 33, 37, 39, 41, 43, 45, 47, 49, 50, $[4\pi r^2;\ 400\pi]$. Find $f'(x)$ for $f(x) = \frac{1}{5x+2}$ and $f(x) = \sqrt{7x+3}$. $\left[\ \frac{-5}{(5x+2)^2}\ ,\ \frac{7}{2\sqrt{7x+3}}\ \right]$
3.3	116	Odd 1 – 33; odd 41 – 47; 53, 55, 56, 61, 67, 71, 73, 77. The height of a ball at time t is $s(t)\ =\ 224t - 16t^2$. Find $a)$ velocity at time $t = 4$, $t = 8$; $b)$ when the ball's velocity equals 48 and the height of the ball at that time; $c)$ when the ball hits the ground; $d)$ the maximum height the ball reaches; $e)$ the velocity when the ball has height 640. $Answers$: $a)$ 96, – 32; $b)$ $5 \cdot 5$, 748; $c)$ 14; $d)$ 784; $e)$ 4, 10

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Section	Page	Problems
3.4	125	Odd 1 – 37; 41, 45, 47
3.5	135	IN CLASS
	144	1, 5, odd 7 – 17; 21, odd 27 – 45, 61, 63, 65, 71, 73, 77, 79, 87
3.7	151	odd 1 – 11, 15, 19, odd 23 – 27
3.8	158	1, 5, 9, 11, 12 $\left(\frac{-111.7in^3}{min}\right)$, 13, 14, $\left(\frac{132}{\sqrt{116}}\right)$, 15, 17, 18 (600π), 19, 20 $\left(\frac{2500}{\sqrt{249{,}600}} \approx 5ft./sec.\right)$, 23, 33
4.1	175	1, 3, 5, 7, 8 $\left(20, \frac{-4}{5}\right)$, odd 9 – 25; 29, 37
4.2	181	3, 5, odd 9 – 15; 35
4.3	190	Odd 1 – 19; odd 23 – 39
4.4	198	1, 3, 5, 11, 15, 21, 29, 31, 33, 35
4.5	206	1, 3, 7, 9, 11, 15, 19, 21, 23, 29, 35
4.6	215	1, 3, 4, 5, 7, 9, 10, 11, 13, 15, 17, 18, 19
4.7	229	1, 3, 9, 11, 12, 21, 29, 30, 31. A car traveling at 25 $ft./sec.$ at time $t = 0$ accelerated at 10 $ft./sec.^2$. Find $a)$ the velocity at time $t = 8$; $b)$ the time t when the velocity equals 50 $ft./sec.$ and the distance traveled by the car from time $t = 0$ to that time; $c)$ Find the velocity at the time the car has traveled 120 $feet$. $Answer$: $a)$ 105 $ft./sec.$; $b)$ 2.5 $sec.$, 93.75 $feet$; $c)$ 55 $ft./sec.$
5.1	249	Odd 1 – 53; 59, 60 $\left(16t^2 feet, \ -96\ ft./sec., \ 2.5\sqrt{10}\ sec.\right)$, 61, 64 $(t^2, 15)$, 65
5.2	255	Odd 1 – 49; 53, 55, 63
5.3	266	Odd 1 – 21; 25, 27. Rework 25 and 27 on the interval $[1, \ 4]$ using inscribed rectangles. $(ANS: \ 24, \ \frac{125}{3})$
5.4	273	1, 5, 7, 9; odd 13 – 35
5.5	281	Odd 1 – 25
5.6	291	Odd 1 – 35; 41, 43, 49. $Even$ 12 – 32 $\left[-\frac{1}{70}, \ \frac{-481}{16}, \ \frac{-16}{3}, \ 0, \ \frac{5}{6}, \ \frac{37}{2}, \ 6.65, \ \frac{2}{15}, \ 2, \ \frac{65}{16}, \ 6 - 3\sqrt{2} \approx 1.76\right]$
5.7	298	1, 30
12.1	610	odd 1 – 25, 35
12.2	621	odd 1 – 19, 23, 25, 33
12.3	632	odd 1 – 27, 35