

## MA 223 Even Answers

### Section 1.2

48)  $2x(3x^2 + 1)^4(18x^2 + 1)$

54)  $x = \frac{4}{3}, -1$

56)  $x = \frac{3}{2}, -\frac{4}{3}$

70)  $\frac{2(1-3x^2)}{(1+x^2)^3}$

### Section 1.4

14)  $m = -\frac{1}{3}$

30)  $y = -\frac{1}{2}x + \frac{5}{2}$

32)  $x = 2$

44)  $m = -\frac{5}{8}$  and  $b = 3$

### Section 2.1

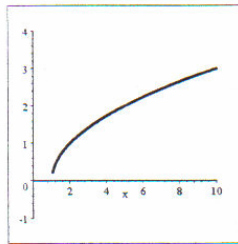
12)  $g(-2) = 2; g(0) = 1$

$g(2) = 0; g(4) = \sqrt{2}$

24)  $(-\infty, 1) \cup (1, \infty)$

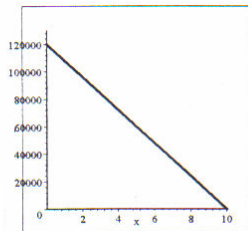
34)  $[1, 3) \cup (3, \infty)$

42) Domain:  $[1, \infty), [0, \infty)$



70) (a)  $V = -12,000n + 120,000$

(b)



(c) \$48,000

(d) \$12,000 per year

### Section 2.2

26) (a)  $f \circ g = 3x^2 + 20x + 34$

(b)  $g \circ f = 3x^2 + 2x + 4$

28) (a)  $f \circ g = 2\sqrt{x^2 + 1} + 3$

(b)  $g \circ f = 4x + 12\sqrt{x} + 10$

34)  $h(2) = 2$

### Section 2.3

18) a)  $C(x) = 14x + 100,000$

b)  $R(x) = 20x$

c)  $P(x) = 6x - 100,000$

d) loss of \$28000, profit of \$20000

20)  $\approx 118$  mg

24) \$128,000

28) in  $5\frac{1}{2}$  yr

60)  $A(x) = 40x - x^2, [0, 40]$

### Section 2.4

4)  $\lim_{x \rightarrow 1}$  does not exist.

6)  $\lim_{x \rightarrow -2} f(x) = 3$

8)  $\lim_{x \rightarrow 0}$  does not exist.

14)  $\lim_{x \rightarrow 2}$  does not exist.

56)  $\lim_{x \rightarrow 2}$  does not exist.

62)  $\lim_{x \rightarrow -2} \frac{4 - x^2}{2x^2 + x^3} = 1$

64)  $\lim_{x \rightarrow \infty} f(x)$  does not exist ( $\infty$ );

$\lim_{x \rightarrow -\infty} f(x)$  does not exist ( $-\infty$ )

66)  $\lim_{x \rightarrow \infty} f(x) = 1; \lim_{x \rightarrow -\infty} f(x) = 1$

68)  $\lim_{x \rightarrow \infty} f(x) = 1; \lim_{x \rightarrow -\infty} f(x)$  does not exist ( $\infty$ )

76)  $\lim_{x \rightarrow \infty} \frac{2x^2 + 3x + 1}{x^4 - x^2} = 0$

78)  $\lim_{x \rightarrow \infty} \frac{4x^4 - 3x^2 + 1}{2x^4 + x^3 + x^2 + x + 1} = 2$

## MA 223 Even Answers

### Section 2.5

- 4)  $\lim_{x \rightarrow 1^-} f(x) = 3$ ;  $\lim_{x \rightarrow 1^+} f(x) = 3$ ;  $\lim_{x \rightarrow 1} f(x) = 3$
- 6)  $\lim_{x \rightarrow 0^-} f(x) = 2$ ;  $\lim_{x \rightarrow 0^+} f(x) = \text{DNE}(\infty)$ ;  $\lim_{x \rightarrow 0} f(x) = \text{DNE}$
- 40)  $\lim_{x \rightarrow 0^+} f(x) = 3$ ;  $\lim_{x \rightarrow 0^-} f(x) = 1$
- 42)  $\lim_{x \rightarrow 1^+} f(x) = 1$ ;  $\lim_{x \rightarrow 1^-} f(x) = 1$
- 58)  $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$
- 60)  $(-\infty, -1) \cup (-1, \infty)$
- 64)  $(-\infty, -2) \cup (-2, \infty)$
- 70) discontinuous at  $x = 0$  and  $x = 2$

### Section 2.6

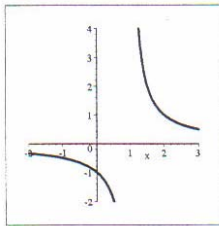
12)  $m = -4$

22)  $m = -\frac{3}{2}$ ;  $y = -\frac{3}{2}x + 3$

26) a)  $-\frac{1}{(x-2)^2}$

b)  $y = -\frac{1}{4}x - \frac{3}{4}$

c) Graph



- 28) a) 3; 2.5; 2.1  
b) 2
- 30) a) 48 ft/sec.; 56 ft/sec.; 62.4 ft./sec.  
b) 64 ft/sec.  
c) -32 ft/sec.; falling  
d) 8 sec.
- 34) a)  $-20x + 300$   
b) \$100/surfboard  
c) \$200/surfboard