

## Even Answers for problems on assignment sheet in bold print

### Homeworks 1a & 1b (Section 5.2 from algebra part of text and R.1 from calculus part of text)

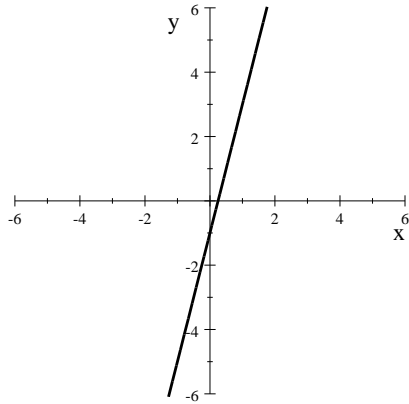
- 22) binomial, degree 5  
42)  $q^3 + 8q^2 - 4q$   
48)  $-8x - 12$   
56)  $2x^5 - x^4 - 2x^3 + 1$   
62)  $t^3 - 5t^2 - t$   
70)  $-7z^2 + 7z - 3$   
72)  $-m^3 + 8m^2 - 8m$
- 4)  $9r^2 - 4r + 19$   
6)  $0.8r^2 + 3.6r - 1.5$

### Homeworks 2a & 2b (Sections 3.5 and 7.4 from algebra part of text; sections 1.2 and 2.1 from calculus part of text)

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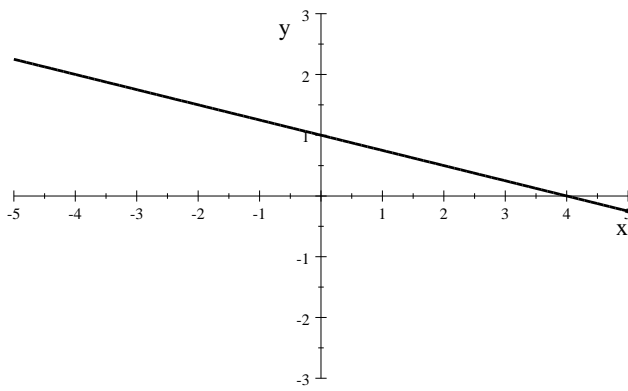
- 14) not a function, Domain is  $\{1, 2, 3, 5\}$ , Range is  $\{10, 15, 19, 27\}$   
16) a function, Domain is  $\{-2, 0, 2, 4\}$ , Range is  $\{-3\}$   
24) a function, Domain:  $(-\infty, \infty)$ , Range:  $(-\infty, \infty)$   
26) not a function, Domain:  $[0, \infty)$ , Range:  $(-\infty, \infty)$   
28) a function, Domain:  $(-\infty, \infty)$   
32) a function, Domain:  $[0, \infty)$   
34) a function, Domain:  $(-\infty, 0) \cup (0, \infty)$   
36) a function, Domain:  $\left(-\infty, \frac{9}{2}\right]$   
38) a function, Domain:  $(-\infty, -2) \cup (-2, \infty)$   
46)  $f\left(\frac{7}{3}\right) = -3$   
50)  $g(k) = -k^2 + 4k + 1$   
52)  $g(-x) = -x^2 - 4x + 1$   
54)  $f(x-2) = -3x + 10$   
58)  $f(x+h) - f(x) = -3h$   
60)  $f(10) - g(10) = 33$   
62) (a)  $f(2) = 5$  (b)  $f(-1) = 11$   
64) (a)  $f(2) = 1$  (b)  $f(-1) = 7$   
66) (a)  $f(2) = -3$  (b)  $f(-1) = 2$   
68) (a)  $f(x) = \frac{1}{4}x - 2$  (b)  $f(3) = -\frac{5}{4}$   
72) (a)  $f(x) = \frac{2}{5}x + \frac{9}{5}$  (b)  $f(3) = 3$

(continued on the next page)



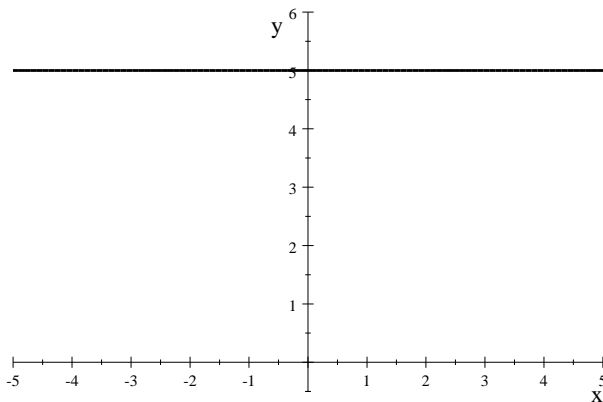
76)

(a) Domain:  $(-\infty, \infty)$  (b) Range:  $(-\infty, \infty)$



78)

(a) Domain:  $(-\infty, \infty)$  (b) Range:  $(-\infty, \infty)$



82)

(a) Domain:  $(-\infty, \infty)$  (b) Range:  $\{5\}$

86) (a)

$x$	0	1	2	3
$f(x)$	\$0	\$2.50	\$5.00	\$7.50

(b)  $f(x) = 2.5x$

(continued on the next page)

- 90) (a) Graph is a function because it passes the vertical line test.  
 (b) Domain:  $[0, 24]$  (c) approximately 1200 megawatts of electricity used  
 (d) most used at 18 hours (6 PM), least used at 4 hours (4 AM)  
 (e)  $f(12) = 2100$  At noon, 2100 megawatts of electricity used

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- 6) Numbers 5 and  $-5$  are excluded (or restricted) from the Domain.  
 $D = (-\infty, -5) \cup (-5, 5) \cup (5, \infty)$
- 10) Numbers  $-\frac{13}{4}$ , 0, and  $\frac{5}{3}$  are excluded (or restricted) from the Domain.  
 $D = (-\infty, -\frac{13}{4}) \cup (-\frac{13}{4}, 0) \cup (0, \frac{5}{3}) \cup (\frac{5}{3}, \infty)$

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- 6)  $g(2.5) = 2$  10)  $g(k^2) = 2k^2 - 3$
- 27) (b) \$11 (e) 480 watches (i) 1333 watches
- 33) (a)  $C(x) = 3.5x + 90$  (b) 17 shirts (c) 108 shirts
- 35) (a)  $C(x) = 0.097x + 1.32$  (b) \$1.32 (c) \$98.32 (d) \$98.417  
 (e) marginal cost of 1001<sup>st</sup> cup is approximately \$0.097 or \$0.10  
 (f) The marginal cost of any cup (cost of producing any additional cup of coffee once 1000 cups have been made) is \$0.097 or about 9.7 cents
- 38) (a) 3 medals (b) \$3289 (c) 7 medals

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- 2)  $y$  is a function of  $x$  4)  $y$  is not a function of  $x$
- 6)  $y$  is a function of  $x$  8)  $y$  is not a function of  $x$
- 18) Domain:  $(-\infty, \infty)$  22) Domain:  $(-\infty, \infty)$
- 26) Domain:  $(-\infty, -6) \cup (-6, 6) \cup (6, \infty)$
- 34)  $D = [-5, \infty)$ ,  $R = [0, \infty)$  35)  $D = (-\infty, \infty)$
- 38)  $D = [-2, 4]$ ,  $R = [0, 5]$  (a)  $f(-2) = 5$ , (b)  $f(0) = 0$ , (c)  $f(\frac{1}{2}) = 1$ ,  
 (d)  $x$  values of  $-\frac{1}{4}, \frac{1}{2}, \frac{3}{2}, \frac{5}{2}$
- 40)  $D = [-2, 4]$ ,  $R = \{3\}$   
 (a)  $f(-2) = 3$ , (b)  $f(0) = 3$  (c)  $f(\frac{1}{2}) = 3$   
 (d) no values of  $x$
- 47)  $g(r+h) = r^2 + 2rh + h^2 - 2r - 2h + 5$
- 50)  $g(-\frac{5}{z}) = \frac{25}{z^2} + \frac{10}{z} + 5$
- 51) (a)  $f(x+h) = 2x+2h+1$  (b)  $f(x+h) - f(x) = 2h$  (c)  $\frac{f(x+h) - f(x)}{h} = 2$
- 58) is a function
- 62) is not a function
- 76(a) 66.2 kcal/day, 222.4 kcal/day