

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) $-m^3 + 8m^2 - 8m$

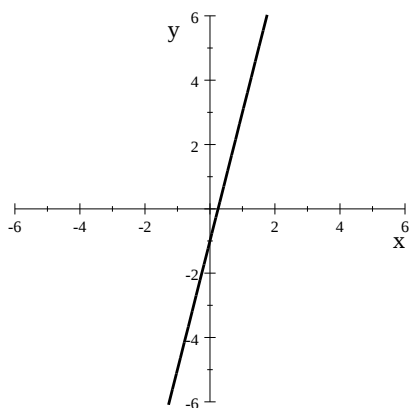
- 4) $9r^2 - 4r + 19$
6) $0.8r^2 + 2.6r - 1.5$

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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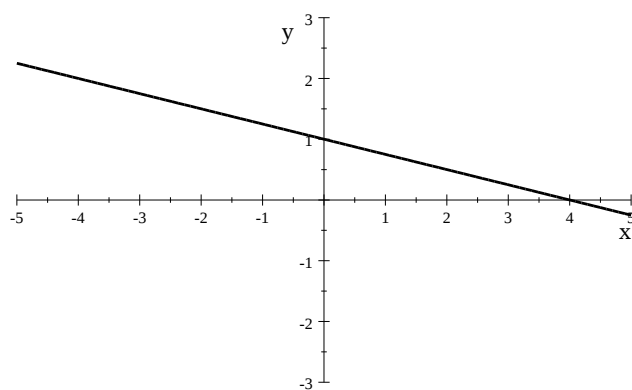
- 14) not a function, Domain is $\{1, 2, 3, 5\}$, Range is $\{10, 15, 19, 27\}$
16) a function, Domain is $\{-2, 0, 2, 4\}$, Range is $\{-3\}$
24) a function, Domain: $(-\infty, \infty)$, Range: $(-\infty, \infty)$
26) not a function, Domain: $[0, \infty)$, Range: $(-\infty, \infty)$
28) a function, 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)



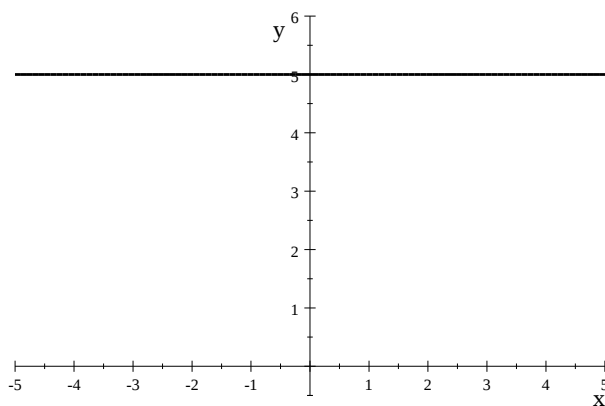
76)

(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 1001st 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