MA 111 Even Homework Answers

Section 1.1

4. $2x$
8. $\frac{1}{2}y-6$
12. $mn+2$
16. 27
24. 3
28. 13
30. 3.045 sq m
32. 7.2 sq ft
42. $\{x|x$ is an integer greater than - 4 and less than $3\}$
46. False
48. True
50 False
62. $3(m^3+n^3)$
64. $(x-y)(x+y)$

Section 1.2

2. 7
8. $3\frac{3}{4}$
16. 7 is greater than or equal to -2, true
32. $-\frac{1}{40}$
34. -9.6
36. $\frac{3}{10}$
38. -3.19
42. -6.6
50. -3
52. 1.9
62. 6
68. $-\frac{13}{15}$
70. -1.1
76. 56
84. 8.17
86. 5
88. -10
94. $\frac{1}{3}$
102. $\frac{5}{21}$
106. $\frac{1}{33}$
110. –3
114. $\frac{55}{2}$
118. 79
132. $8x+8$
138. $5xy-5xz+5xw$

Section 1.3

10. $y=6.9$
18. $x=14$
24. $8a^2$
26. $14x$
32. $13a-5a^2$
46. $-15y-45$
50. $47b-51$
58. $t=13$
64. $y=1$
68. $x=7$
70. $t=-7$
72. $x=\frac{37}{5}$
78. $t=\frac{22}{5}$
92. $0.42\left(\frac{n}{2}\right)$

Section 1.4

4. Let t = time (hours) it will take Fran to swim 1.8 km upriver: $2.7t=1.8$
6. Let t = time (hours): $325t=725$
8. let w= wholesale price: $w + 0.5w+.25=1.99$
10. Let b = original amt of bill $b - 0.05b = 142.50$
12. Let x = longer length: $x+\frac{2}{3}x=10$
14. Let x = measure of the second angle: $4x+x+(2x+5)=180$
16. Let x =first odd number $n+2(n+2)+3(n+4)=70$
18. Let x = length of one piece $\left(\frac{x}{4}\right)^2=\left(\frac{100-x}{4}\right)^2+144$
42. 36

Section 1.4 (cont)

22. 156.7
24. 1368
26. 13.5
28. length 7 cm width 3.5 cm
30. length 12 m width 4 m
34. $96^\circ, 32^\circ, 52^\circ$
44. $\frac{4}{3}$

Section 1.5

8. $r=\frac{I}{Pt}$
12. $t=\frac{P-b}{0.5}$
14. $w=\frac{p-2h-l}{2}$
16. $y=\frac{12-2x}{3}$ or $y=4-\frac{2}{3}x$
18. $l=\frac{P-2w}{2}$ or $\frac{P}{2}-w$
22. $\pi=\frac{3V}{4r^3}$
32. $x=\frac{p}{1-yz}$
36. \$1571.43
44. 25 ft
48. about 7.7 hr
52. $4\cdot x\cdot y\cdot y; (y\cdot 4)(x\cdot y)$

Section 1.6

2. 2^7
20, $5x^6y^6$
22. $-6x^6y^3z^6$
48. $\frac{x^3}{y^5}$
64. $\frac{1}{9^7}$
68. 1
88. a^6
90. $\frac{1}{8^{12}}$
106. $\frac{8x^9y^3}{27}$
108. 1

Section 1.7

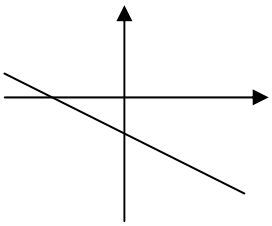
2. 2.6×10^{12}
10. 3.09×10^{12}
12. 8.02×10^{-9}
16. 0.00005
20. 0.07034
28. 3.4×10^{-4}
30. 3.5×10^{-11}
48. 3.2×10
68. 32

Section 2.1

10. IV
12. III
16. Yes
26. No

Section 2.1 (cont)

42.



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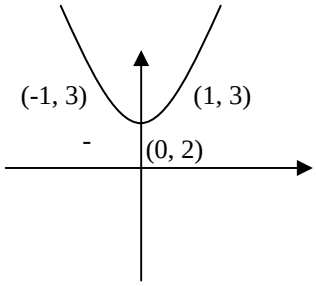

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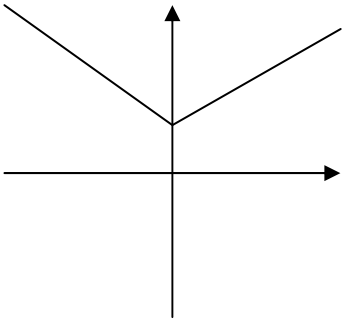


68. IV, III, I, II

Section 2.2

2. Yes
6. No
18. a)3 b) $\{x|-4 \le x \le 3\}$
c)0 d) $\{y|-5 \le y \le 4\}$
20. (a) 4
(b) $\{x|-3 \le x \le 4\}$
(c) -1
(d) $\{y|0 \le y \le 5\}$
28. No
30. No
34. Yes
66. –1

section 2.2 (cont)

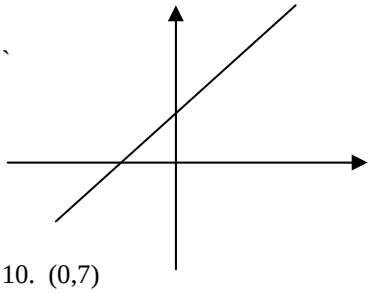
38. (a) $g(0) = 0$
(b) $g(-1) = 5$
(c) $g(3) = 21$
(d) $g(t) = 3t^2 - 2t$
(e) $g(2a) = 12a^2 - 4a$

40. (a) $\frac{26}{25}$
(b) $\frac{2}{9}$
© $-\frac{5}{12}$
(d) $-\frac{7}{3}$
(e) $\frac{3x+5}{2x+11}$

46. 100π *or* 314.16 cm^2
48. $41^\circ F$
52. 125 per 10,000 men
56. 3 drinks
60. about 80,000
70. $y = \frac{5}{4}x - 2$

Section 2.3

6.



10. (0,7)
12. (0,2.2)
18. slope $= \frac{4}{3}$
20. slope $= \frac{3}{26}$
38. slope $= -\frac{5}{4}$; (0,1)
46. $f(x) = -\frac{3}{4}x + 12$
48. $f(x) = 2x - 1$
50. slope $= -\frac{5}{4}$; (0,1)
54. The distance from the finish line is decreasing at a rate of $6\frac{2}{3}$ m per second.
58. The distance from home is increasing at a rate of 0.25 km per minute.
70. 0.05 signifies that a salesperson earns 5% commission on sales; 200signifies that a salesperson earns a base salary of \$200 per week.

Section 2.3 (cont)

72. $\frac{1}{8}$ signifies that the grass grows $\frac{1}{8}$ in per day; 2 signifies that the grass is 2 in long when cut.

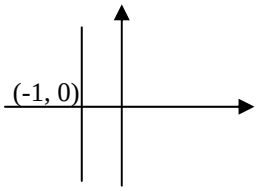
78. 0.3 signifies that the cost per mile of renting the truck is \$0.30; 20 signifies that the minimum cost is \$20.

80. –2000 signifies that the depreciation is \$2000 per year; 15,000 signifies that the original value of the machine was \$15,000.

88. 3

Section 2.4

6. slope=0
18. slope $= -\frac{3}{2}$
20.



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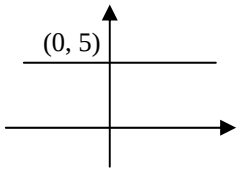
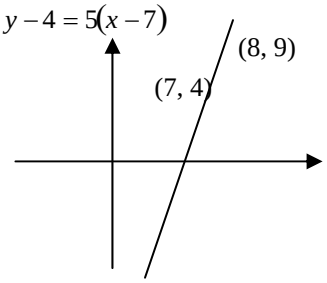


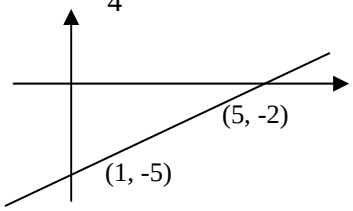
34. (4,0); (0,-5)
36. (4,0); (0,6)
38. (5,0); (0,-3)
60. 1 hr
64. equation is linear; slope $= -\frac{3}{5}$
80. $-2x - 8$
82. $-\frac{3}{2}x - \frac{12}{5}$

Section 2.5

2. $y-4=5(x-7)$



10. $y+5=\frac{3}{4}(x-1)$



14. slope$=-\frac{2}{9}$; $(-5,1)$

20. $f(x)=-4x+1$

32. $f(x)=-\frac{4}{3}x-4$

78. $5t^2-6t-3$

Section 2.5 (cont)

38. (a) $A(p)=-2.5p+26.5$
    (b) 11.5 million lb
40. (a) $A(p)=2p-11$
    (b) 1 million lb.
44. (a) $P(d)=.03d+1$
    (b) 21.7 atm
46. Yes, the lines are parallel
56. $y=-\frac{5}{2}x-\frac{35}{2}$
68. $y=-\frac{2}{5}x-\frac{31}{5}$
82. –34
88. $11,000

Section 2.6

2. 7
8. $-\frac{8}{11}$
12. x^2+3x+1
16. 33
18. –1
22. $-x^2-x+7$
54. 0; 2
64. $y=\frac{3}{8}x-\frac{5}{8}$

Section 3.1

2. yes
4. no
6. yes
10. (3,1)
14. (1,-5)
18. (4,-5)
22. (3,-2)
28. $\{(x,y)|2x-3y=6\}$
54. $\frac{19}{12}$

Section 3.1 (cont)

38. Let $x=$ measure of first angle; $y=$ measure of second angle:
$$x+y=90$$
$$x+\frac{1}{2}y=64$$
40. $c+a=250$
$3.5c+7a=1347.5$
42. $2l+2w=288$
$l=w+44$
44. Let $x=$ # two-pointers; $y=$ # three pointers
$x+y=40$
$2x+3y=89$
46. Let $x=$ # of 30 sec. Commercials; y= # of 60 sec. commercials
$x+y=12$
$30x+60y=600$
50. $c+f=152$
$c=5+6f$
56. $\frac{13}{3}$
66. Let x represent Burl's age now and y his son's age now.
$x=2y$
$x-10=3(y-10)$

Section 3.2

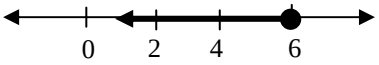
6. (2, -7)
14. $\left(\frac{25}{23},-\frac{11}{23}\right)$
22. $\left(\frac{1}{2},-5\right)$
24. $\left(\frac{10}{21},\frac{11}{14}\right)$
36. (2,3)
38. $\left(\frac{1}{2},-\frac{1}{2}\right)$
42. no solution
52. 86
54. 30m, 90m, 360m

Section 3.3

6. first angle= 38°; second= 52°
8. 115 children's ; 135 adult's
10. $l=94$ ft., $w=50$ ft.
12. 31 two-pointers and 9 three-pointers
22. cashews 20 lb; brazil nuts 30 lb
26. Deep Thought 12 lb; Oat Dream 8 lb
48. $\frac{13}{10}$

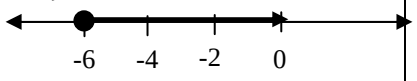
Section 4.1

2. -5 is a solution, -10 is a solution, 0 is not a solution, and 27 is not a solution
4. 2 is not a solution, -3 is a solution, 0 is a solution, and 3 is not a solution
8.



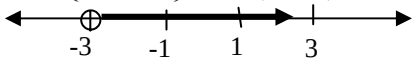
$\{t|t\le 6\}$; $(-\infty,6]$

12.

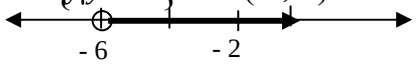


$\{x|x\ge -6\}$; $[-6,\infty)$

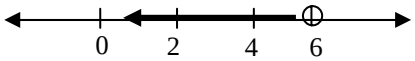
14. $\{x|x>-3\}$ *or* $(-3,\infty)$



20. $\{y|y>-6\}$ *or* $(-6,\infty)$



32. $\{x|x<6\}$ *or* $(-\infty,6)$



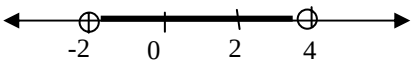
36. $\left\{x|x>\frac{2}{3}\right\}$, or $\left(\frac{2}{3},\infty\right)$
42. $\left\{x|x>-\frac{2}{17}\right\}$, or $\left(-\frac{2}{17},\infty\right)$
48. $\{x|x>6\}$ *or* $(6,\infty)$

Section 4.1 (cont)

54. Calls shorter than 3.5 min.
58. More than 4.25 hr.
60. Plan B is better for values greater than $85\frac{5}{7}$
62. Parties of more than 80
74. 22x-7

Section 4.3

2. $x = -9$ or $x = 9$
10. $x = -\frac{1}{2}$ or $x = \frac{7}{2}$
16. x=2 or x=8
20. $x = -8$ or $x = 8$
22. $q = -\frac{11}{5}$ or $q = \frac{11}{5}$
54. $\{x \mid -2 < x < 4\}$ or $(-2,4)$



62. $\left\{a \mid a \le -\frac{3}{2} or\ a \ge \frac{13}{2}\right\}$ or $\left(-\infty, -\frac{3}{2}\right] \cup \left[\frac{13}{2}, \infty\right)$
86. (-2, -3)
88. (-1, 7)

Section 5.1

2. Degree of terms: 3,2,1,0; degree of poly.:3
10. $-10x^4 + 7x^2 - 3x + 9;\ -10x^4; -10$
20. $Q(3) = -51$ and $Q(-1) = 5$
22. 282; -9
32. 400 ft
56. $16x + 7y - 5z$
60. $2a^2 + 3b - 4ab + 4$
66. $-\frac{2}{15}xy + \frac{19}{12}xy^2 + 1.7x^2y$
72. $14y + 7$
78. $5y^2 + 6y + 3y^3$
92. $x^2 - x - 2$

Section 5.2

8. $3a^3 - 12a^2$
12. $8a^2 + 10ab - 3b^2$
14. $m^2 - 25$
34. $x^2 + 5x + 6$
36. $y^2 + 4y - 5$
40. $4s^2 + 12st + 9t^2$
56. $x^2 - 9$
60. $9x^2 - 25y^2$

30. Train B is 58 mph and train A is

62. $16a^6 - 25a^2b^2$
80. $y = \frac{w}{x + z}$

Section 5.3

22. $-2(x^2 - 6x - 20)$
30. $-(m^3 + m^2 - m + 2)$
32. $(t - 3)(r - s)$
34. $(a + 5)(2a - 1)$
50. $h(t) = -16(t - 6)$
$h(1) = 80\ ft$
52. $\pi r(2h + r)$
64. –1

Section 5.4

2. $(x + 1)(x + 5)$
6. $(t - 5)(t + 3)$
8. $2(a - 4)^2$
10. $x(x + 9)(x - 6)$
16. $(a - 4)(a - 7)$
18. $(x + 3)(x - 2)$
20. $5(y + 1)(y + 7)$
38. $(3x + 2)(x - 6)$
44. $(3a + 2)(3a + 4)$

Section 5.5

6. $4(a - 2)^2$
26. $(y + 10)(y - 10)$
30. $(pq + 5)(pq - 5)$
38. $a^2(3a + b)(3a - b)$

Section 5.7

2. $(x + 12)(x - 12)$
4. $(2a - 3)(a - 4)$
8. $(p + 8)^2$
10. $2(y + 11)(y - 6)$
12. $(4a + 9b)(4a - 9b)$
50. $-\frac{13}{7}$

Section 5.8

2. t = 7 or t = -4
8. y = -5 or y = -3
12. $x = 0$ or $x = 9$ or $x = -7$
16. $a = -6$ or $a = 6$
52. 5 ft
54. The integers are -10, -8, and -6 or 6, 8, and 10
62. 9m by 12m

Section 6.1

16. $a + 4$
18. $\frac{7}{2x - 3}$
32. $\frac{a + 4}{a - 4}$
40. $\frac{3t^2}{4}$
50. $\frac{1 - y}{y + 4}$
62. $\frac{(y - 3)(y + 2)}{y^6}$
66. $-x^2$
82. $-2t^4 + 11t^3 - t^2 + 10t - 3$

Section 6.2

Page 327:

2. $\frac{4}{y}$
8. $\frac{2t + 4}{t - 4}$
16. $\frac{7}{a}$
24. $\frac{2a^2 + 22}{(a - 5)(a + 4)}$
32. $\frac{4y + 17}{(y + 2)(y - 2)}$
60. $\frac{7b^{11}c^7}{9a^2}$

Section 6.4

8. x=5
10. no solution
16. x=11
20. a=2 or a=3
22. t = -23
32. y = -3
44. Child's: 118; adult's: 132
46. 16 and 18

Section 6.5

8. $\frac{45}{14}$ *or* $3\frac{3}{14}$ hours
10. $8\frac{4}{7}$ hours
12. 2.475 hr
22. 8 hr
28. Simone's speed is $\frac{16}{3}$ mph;
Rosanna's speed is $\frac{10}{3}$ mph

46 mph

32. 9 km / h
42. $5x^6y^4$
44. $-2x^4-7x^2+11x$

Section 6.8

32. $y=\frac{5}{12}x$
38. 6 amperes
42. 40 lb
46. $y=\frac{64}{x}$
54. 27 min
58. $y=15x^2$
60. $y=\frac{0.0015}{x^2}$
66. 72 ft
76. $8a^3-2a$
78. $-\frac{5}{3},\frac{7}{2}$

Section 7.1

2. 7, -7
8. 15, -15
16. 0.6
18. 0.12
26. $p(4)=\sqrt{12}$; $p(3)=\sqrt{-2}$ (not real); $p(-5)=\sqrt{30}$; $p(0)=\sqrt{-20}$ (not real)
30. $f(2)=\sqrt{-2}$ (not real); $f(3)=\sqrt{17}$; $f(4)=\sqrt{54}$
60. $4x$
64. $a+1$
70. 3
72. $2x$
80. $(x-2)^4$
100. $10a^{10}b^9$
102. $\frac{x^6y^2}{25z^4}$

Section 7.2

4. 2
6. 2
14. $\sqrt{b^3}$
18. 81
20. 729
24. $27y^9$
28. $6^{\frac{1}{2}}$
30. $a^{\frac{5}{2}}$
36. $(x^3y^2z^2)^{\frac{1}{7}}$
64. $8^{\frac{9}{11}}$
70. $x^{\frac{17}{12}}$
100. $49x^2-14xy+y^2$

Section 7.3

2. $\sqrt{35}$
22. $3\sqrt{3}$
24. $3\sqrt{5}$
28. $5\sqrt{13}$
42. $x^3y^4\sqrt{y}$
44. $a^2b^2c^4\left(\sqrt[3]{bc}\right)$
74. $\frac{2a+6b^3}{a^4b^4}$

Section 7.4

6. $\frac{11}{x}$
36. $\frac{2\sqrt{10}}{3}$
46. $\frac{\sqrt{30x}}{10}$

Section 7.5

8. $7\sqrt{6}$
14. $58\sqrt{3}$
26. $4\sqrt{3}+3$
28. $15-3\sqrt{10}$
36. -1
46. $t-2\sqrt{2rt}+2r$

Section 7.6

2. $x=\frac{63}{5}$
4. $\frac{25}{3}$
6. 168

Section 8.1

2. $x=\pm\sqrt{5}$
6. $x=\pm\frac{\sqrt{35}}{5}$
10. $13\pm3\sqrt{2}$
18. $-3,7$
78. $4\sqrt{5}$
80. 7

Section 8.2

2. $x=\frac{7\pm\sqrt{33}}{2}$
4. $u=1,\frac{5}{3}$
14. $\frac{-1\pm\sqrt{21}}{2}$
20. $\frac{-3\pm\sqrt{37}}{2}$