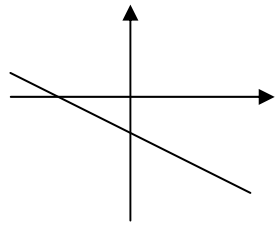


MA 111 Even Homework Answers

Section 1.1 14. $2x$ 18. $\frac{1}{2}y - 6$ 22. $mn + 1$ 26. 27 34. 3 40. 0 44. 3.045 sq m 46. 7.2 sq ft 56. $\{x x \text{ is an integer greater than } -4 \text{ and less than } 3\}$ 64. False 66. False 80. $3(m^3 + n^3)$ 82. $(x - y)(x + y)$ Section 1.2 12. 7 18. $3\frac{3}{4}$ 26. 7 is greater than or equal to -2, true 42. $-\frac{1}{40}$ 44. -9.6 46. $\frac{3}{10}$ 48. -3.19 52. -6.6 60. -3 62. 1.9 72. 6 78. $-\frac{13}{15}$ 80. -1.1 86. 56 94. 8.17 96. 5 98. -10 104. $\frac{1}{3}$ 112. $\frac{5}{21}$ 116. $\frac{1}{33}$ 120. -3 124. $\frac{55}{2}$ 128. 77 142. $8x + 8$ 148. $5xy - 5xz + 5xw$	Section 1.3 18. $y = 6.9$ 26. $x = 14$ 32. $8a^2$ 34. $14x$ 40. $13a - 5a^2$ 54. $47b - 51$ 60. $x = 15$ 68. $y = 1$ 72. $x = 7$ 74. $t = -7$ 76. $x = \frac{37}{5}$ 96. $0.42\left(\frac{n}{2}\right)$ Section 1.4 6. Let t = time (hours): $325t = 725$ 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 $\left(\frac{x}{4}\right)^2 = \left(\frac{100 - x}{4}\right)^2 + 144$ 20. Let x = score on next test $\frac{93 + 89 + 72 + 80 + 96 + x}{6} = 88$ 42. 36 Section 1.4 (cont) 24. \$1500 26. 9 tables 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 4. $P = 2l + 2w$ 16. $r = \frac{I}{Pt}$ 20. $t = \frac{P - b}{0.5}$	22. $w = \frac{p - 2h - l}{2}$ 28. $l = \frac{P - 2w}{2}$ or $\frac{P}{2} - w$ 34. $m = \frac{p}{n + r}$ 48. \$1571.43 60. 1221 72. $4 \cdot x \cdot y \cdot y; (y \cdot 4)(x \cdot y)$ Section 1.6 12. 7^7 16. x^5 30. $5x^6y^6$ 32. $-6x^6y^3z^6$ 38. 81 40. -81 58. $\frac{x^3}{y^5}$ 74. $\frac{1}{9^7}$ 78. 1 98. a^6 100. $\frac{1}{8^{12}}$ 116. $\frac{8x^9y^3}{27}$ 118. 1 Section 1.7 2. Negative power of 10 8. 0.00005 12. 0.07034 28. 3.09×10^{12} 30. 8.02×10^{-9} 34. 3.4×10^{-4} 36. 3.5×10^{-11} 60. \$67,000 72. 5.8×10^8 76. 32 Section 2.1 2. negative 16. IV 18. III 22. Yes 32. No
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Section 2.1 (cont)

48.



Section 2.2

10. no

14. yes

18. a)3 b) $\{x|-4 \leq x \leq 3\}$

c)0 d) $\{y|-5 \leq y \leq 4\}$

28. (a) 4

(b) $\{x|-3 \leq x \leq 4\}$

(c) -1

(d) $\{y|0 \leq y \leq 5\}$

36. No

38. No

42. Yes

76. -1

section 2.2 (cont)

46. (a) $g(0) = 0$

(b) $g(-1) = 5$

(c) $g(3) = 21$

(d) $g(t) = 3t^2 - 2t$

(e) $g(2a) = 12a^2 - 4a$

(f) 17

48. (a) $\frac{26}{25}$

(b) $\frac{2}{9}$

(c) $-\frac{5}{12}$

(d) $-\frac{7}{3}$

(e) $\frac{3x+5}{2x+11}$

60. $41^\circ F$

62. 125 per 10,000 men

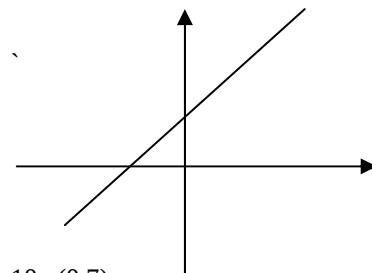
64. 92%

68. 3 drinks; 6.5 drinks

80. $y = \frac{5}{4}x - 2$

Section 2.3

6.



10. (0,7)

18. (0,2.2)

24. slope = $\frac{4}{3}$

26. slope = $\frac{3}{26}$

44. slope = $-\frac{5}{4}$; (0,1)

52. $f(x) = -\frac{3}{4}x + 12$

54. $f(x) = 2x - 3$

60. The value is decreasing at a rate of \$900 per year.

64. The distance from home is increasing at a rate of 0.25 km per minute.

76. 0.05 signifies that a salesperson earns 5% commission on sales; 200 signifies that a salesperson earns a base salary of \$200 per week.

Section 2.3 (cont)

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

84. 0.3 signifies that the cost per mile of renting the truck is \$0.30; 20 signifies that the minimum cost is \$20.

86. -2000 signifies that the depreciation is \$2000 per year; 15,000 signifies that the original value of the machine was \$15,000.

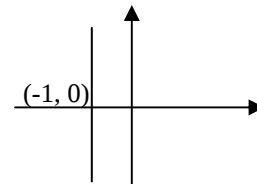
94. 3

Section 2.4

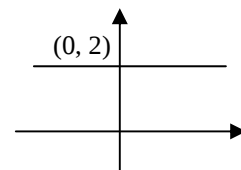
16. slope=0

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

30.



32.



44. (4,0); (0,-5)

46. (-6,0); (0,-9)

72. 1.5 hrs

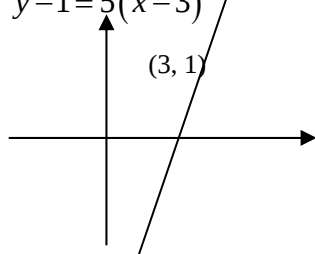
76. equation is linear; slope = $-\frac{3}{5}$

92. $-2x - 8$

94. $-\frac{3}{2}x - \frac{12}{5}$

Section 2.5

12. $y - 1 = 5(x - 3)$



22. slope = $-\frac{2}{9}$; $(-5, 4)$

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

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

94. $5t^2 - 6t - 3$

Section 2.5 (cont)

48. (a) $E(t) = 0.07t + 78.8$

(b) 80.2 yr

50. (a) $A(p) = -2.5p + 26.5$

(b) 11.5 million lb

58. Yes, the lines are parallel

72. $y = -\frac{5}{2}x - \frac{35}{2}$

98. -34

102. \$1350

104. \$11,000

Section 2.6

8. 7

14. $-\frac{8}{11}$

18. $x^2 + 3x + 1$

22. 33

24. -1

28. $-x^2 - x + 7$

60. 0; 2

70. $y = \frac{3}{8}x - \frac{5}{8}$

Section 3.1

10. yes

12. no

14. yes

22. (1, -5)

26. (4, -5)

30. (3, -2)

36. $\{(x, y) | 2x - 3y = 6\}$

58. $\frac{19}{12}$

Section 3.1 (cont)44. Let v = avg verbal score and m the avg math score

$$v + m = 1026$$

$$m = v + 12$$

48. Let x = # two-pointers; y = # three pointers

$$x + y = 40$$

$$2x + 3y = 89$$

50. Let p = # of polarfleece and w = # of wool

$$p + w = 40$$

$$9.90p + 12.75w = 421.65$$

54. $2l + 2w = 228$

$$w = l - 42$$

58. $\frac{19}{12}$

68. Let x represent Burl's age now and y his son's age now.

$$x = 2y$$

$$x - 10 = 3(y - 10)$$

70. $2l + 2w = 156$

$$l = 4(w - 6)$$

Section 3.2

12. (2, -7)

14. no solution

28. $\left(\frac{1}{2}, -5\right)$

30. $\left(\frac{10}{21}, \frac{11}{14}\right)$

42. (2, 3)

48. no solution

60. 30m, 90m, 360m

Section 3.3

4. math: 519; verbal: 507

8. 31 two-pointers and 9 three-pointers

10. polarfleece: 31; wool: 9

24. 12 L of 25% and 18L of 50%

38. 14 km/h

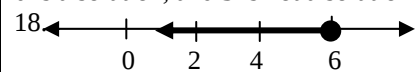
42. length 76m; width 19m

56. $\frac{13}{10}$

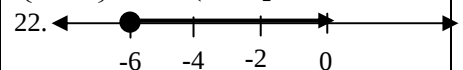
Section 4.1

12. -5 is a solution, -10 is a solution, 0 is not a solution, and 27 is not a solution

14. 2 is not a solution, -3 is a solution, 0 is a solution, and 3 is not a solution

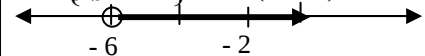


$$\{t | t \leq 6\} ; (-\infty, 6]$$



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

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



56. $\left\{x \mid x > -\frac{2}{17}\right\}$, or $\left(-\frac{2}{17}, \infty\right)$

62. $\{x | x > 6\}$ or $(6, \infty)$

Section 4.1 (cont)

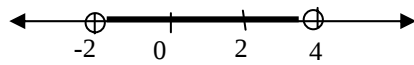
68. Calls shorter than 3.5 min.

72. More than 4.25 hr.

74. Plan B is better for values greater than $85\frac{5}{7}$

76. More than \$1850

62. Parties of more than 80

88. $22x-7$ **Section 4.3**10. $x = -9$ or $x = 9$ 18. $x = -\frac{9}{5}$ or $x = 1$ 62. $\{x | -2 < x < 4\}$ or $(-2, 4)$ 70. $\left\{a \mid a \leq -\frac{3}{2} \text{ or } a \geq \frac{13}{2}\right\}$ or $\left(-\infty, -\frac{3}{2}\right] \cup \left[\frac{13}{2}, \infty\right)$ 94. $(-2, -3)$ 96. $(-1, 7)$ **Section 5.1**

12. Degree of terms: 3, 2, 1, 0; degree of poly.: 3

18.

 $-10x^4 + 7x^2 - 3x + 9; -10x^4; -10$ 56. $16x + 7y - 5z$ 66. $2a^2 + 3b - 4ab + 4$ 72. $-\frac{2}{15}xy + \frac{19}{12}xy^2 + 1.7x^2y$ 78. $14y + 7$ 102. $49t^8$ **Section 5.2**16. $3a^3 - 12a^2$ 22. $x^2 + x - 30$ 52. $a^8b^4 + 6a^4b^2 + 9$ 60. $x^2 - 9$ 62. $9 - 4x^2$ 64. $9x^2 - 25y^2$ 66. $16a^6 - 25a^2b^2$ 84. $y = \frac{w}{x+z}$ **Section 5.3**18. $4xy(x - 3y)$ 30. $-2(x^2 - 2x + 6)$ 40. $(t - 3)(r - s)$ 42. $(a + 5)(2a - 1)$
 $h(t) = -16(t - 6)$ 58. $h(1) = 80 \text{ ft}$ 60. $\pi(2h + r)$ 72. -1 **Section 5.4**10. $(x + 2)(x + 6)$ 14. $(x - 9)(x + 3)$ 24. $(t - 9)(t - 5)$ 26. $(x + 5)(x - 2)$ 30. $(8 - x)(7 + x)$ 46. $(3x + 5)(2x - 5)$ 50. $2(4a - 1)(3a - 1)$ **Section 5.5**48. $a^2(3a + b)(3a - b)$ **Section 5.7**8. $(x + 12)(x - 12)$ 10. $(2a - 3)(a - 4)$ 14. $(p + 8)^2$ 16. $2(y + 11)(y - 6)$ 18. $(4a + 9b)(4a - 9b)$ **Section 5.8**18. $\{2, 4\}$ 38. $\{-5, 0, 8\}$ 42. $\{-9, 9\}$

74. length: 12 cm; width: 8 cm

80. 5 ft

82. The integers are -10, -8, and -6 or 6, 8, and 10

90. 2 sets

Section 6.126. $a + 4$ 28. $\frac{7}{2x - 3}$ 30. $\frac{y - 5}{y + 3}$ 50. $\frac{3t^2}{4}$ 52. $\frac{y(y + 5)}{y - 3}$ 68. $-x^2$ 92. $-2t^4 + 11t^3 - t^2 + 10t - 3$ **Section 6.2**40. $\frac{2a^2 + 22}{(a - 5)(a + 4)}$ 48. $\frac{4y + 17}{(y + 2)(y - 2)}$ 74. $\frac{7b^{11}c^7}{9a^2}$ **Section 6.4**18. $t = 7$

22. no solution

32. $x = 11$ 38. $t = -23$ 40. $x = -3$

60. Child's: 118; adult's: 132

62. 16 and 18

Section 6.58. $3\frac{3}{7}$ hrs

16. Skyler: 12 hr; Jake: 6 hr

18. $1\frac{1}{5}$ hr28. Simone's speed is $\frac{16}{3}$ mph;
Rosanna's speed is $\frac{10}{3}$ mph

30. Train B is 58 mph and train A is 46 mph 32. 1 1/5 km / h 42. $5x^6y^4$ 44. $-2x^4 - 7x^2 + 11x$ Section 6.8 42. $y = \frac{5}{12}x$ 48. $y = \frac{64}{x}$ 56. 27 min 60. 40 lb 68. $y = 15x^2$ 70. $y = \frac{0.0015}{x^2}$ 86. $8a^3 - 2a$ 88. $-\frac{5}{3}, \frac{7}{2}$ Section 7.1 2. 7, -7 16. 15, -15 24. 0.6 26. 0.12 34. $p(4) = \sqrt{12}$; $p(3) = \sqrt{-2}$ (not real); $p(-5) = \sqrt{30}$; $p(0) = \sqrt{-20}$ (not real) 38. $f(2) = \sqrt{-2}$ (not real); $f(3) = \sqrt{17}$; $f(4) = \sqrt{54}$ 68. $5t$ 80. $3x$ 86. a^7 88. $(x+3)^5$ 108. $10a^{10}b^9$ 102. $\frac{x^6y^2}{25z^4}$ Section 7.2 12. 2 14. 2 22. $\sqrt{b^3}$ 26. 243 30. $27y^9$ 34. $6^{\frac{1}{2}}$ 36. $a^{\frac{5}{2}}$	42. $(x^3y^2z^2)^{\frac{1}{7}}$ 54. 4 68. $8^{\frac{9}{11}}$ 74. $x^{\frac{13}{12}}$ 104. $49x^2 - 14xy + y^2$ Section 7.3 18. $\sqrt{x^2 - a^2}$ 24. $\sqrt{\frac{7x}{6y}}$ 30. $3\sqrt{5}$ 34. $5\sqrt{13}$ 48. $x^3y^4\sqrt{y}$ 50. $a^2b^2c^4(\sqrt[3]{bc})$ 54. $abc\sqrt[5]{ab^3c^4}$ 80. $\frac{2a+6b^3}{a^4b^4}$ Section 7.4 14. $\frac{11}{x}$ 44. $\frac{3\sqrt{10}}{4}$ 54. $\frac{\sqrt{30x}}{10}$ Section 7.5 8. $6\sqrt{7}$ 14. $6\sqrt{6}$ 20. $58\sqrt{3}$ 46. 29 Section 7.6 8. $\frac{38}{3}$ 14. -3 Section 8.1 8. $\pm\sqrt{3}$ 14. -7, 3 16. $-5 \pm 2\sqrt{2}$ 24. -3, 7 80. $4\sqrt{5}$ 82. 7	Section 8.2 8. $x = \frac{7 \pm \sqrt{33}}{2}$ 10. $u = 1, \frac{5}{3}$ 20. $\frac{-1 \pm \sqrt{21}}{2}$ 26. $\frac{-3 \pm \sqrt{37}}{2}$
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