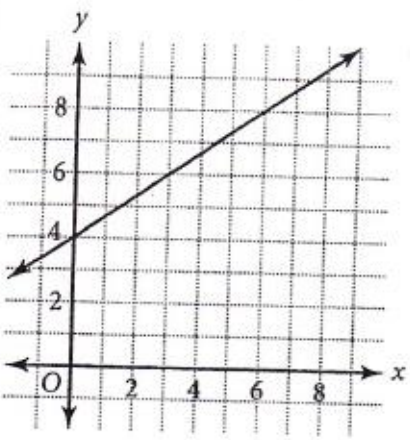
Hon Alg 2 SUMMER PACKET answer key

Answer Key

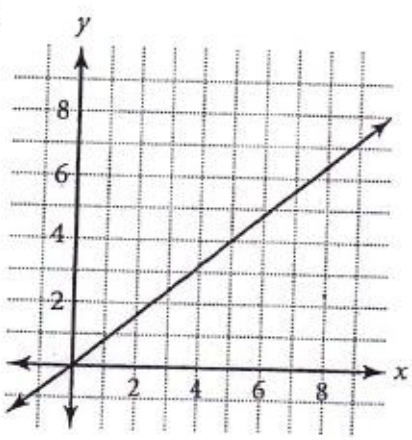
Section 1:

1. yes 2. yes 3. no 4. yes 5. no
6. yes 7. yes 8. no 9. yes 10. no
11. no 12. yes

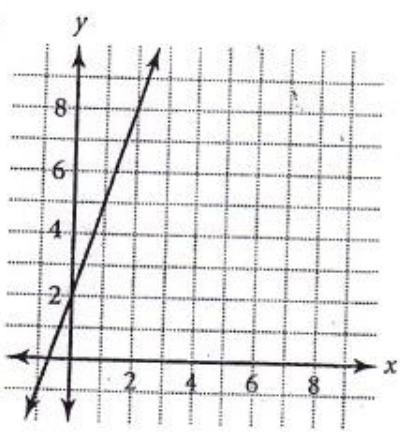
13.



14.



15.



16. $(6, 19)$ 17. $(4, 20)$ 18. not linear
19. $(-4, 23)$ 20. $(8, -29)$ 21. $(5, -14)$

Section 2:

1. $y = 2x - 5$ 2. $y = 3x + 1$
3. $y = -4x + 3$ 4. $y = \frac{4}{5}x - \frac{2}{5}$
5. $y = \frac{1}{6}x + 3$ 6. $y = \frac{1}{4}x + 4$ 7. $-\frac{2}{3}$
8. $\frac{57}{100}$ 9. 1 10. 3
11. $m = -\frac{3}{4}, b = \frac{3}{2}$ 12. $m = -\frac{3}{8}, b = -\frac{3}{2}$

x-int = (2, 0) x-int = (-4, 0)

13. $m = -2, b = -4$ 14. $m = -3, b = -7$

x-int = (-2, 0) x-int = (-7/3, 0)

15. $y = \frac{5}{6}x + 3$ 16. $y = -\frac{3}{4}x + 3$

Section 3A:

1. $\frac{1}{2}$ 2. $\frac{9}{10}$ 3. -1 4. -2 5. 1
6. undefined 7. -3 8. $\frac{1}{3}$ 9. 1 10. -12
11. undefined 12. -2 13. -8 14. 3
15. 40 16. -2 17. $\frac{3}{2}$ 18. 1

Section 3B:

1. $-3x + y = -9$ 2. $6x - y = 12$
3. $-4x + 5y = -40$ 4. $8x + 7y = -95$
5. $-67x - 96y = -42$ 6. $70x + 35y = 68$
7. $x = -64$ 8. $7y = -3$ 9. $2x + 5y = 8$
10. $-12x + 75y = 5$ 11. $-3x + 4y = -80$
12. $6x + 7y = -108$ 13. $5x - y = 26$
14. $3x + y = -17$ 15. $6x + y = 3$
16. $x + 6y = 22$ 17. $-x + 3y = -17$
18. $x + 2y = 5$ 19. $-2x + 3y = -27$
20. $4x + 7y = 21$ 21. $-7x + 9y = -38$
22. $-5x + 4y = -5$ 23. $-2x - 7y = 21$
24. $5x + 8y = -14$ 25. $y = \frac{1}{2}, x = 0$
26. $y = 4, x = -7$ 27. $y = -10, x = -8$
28. $y = -3, x = 5$

Section 4:

1. x – y = – 2
2. x + y = 2
3. x + 5y = 8
4. x + 2y = 2
5. 9x +y = – 13
6. 4x – 5y = -11/2
7. y – 3 = x – 3
8. y – 6 = - ½ (x – 4)
9. y + 2 = ¾ (x – 4)
10. y – 3 = 4(x – 4)
11. y – 3 = -2(x + 2)
12. y – 6 = - ¼ (x – 8)
13. y = -3

14. $y = -4x - 5$
15. $y = \frac{3}{4}x - 5$
16. $y = 2x + 15$
17. $y = -3x + 5$
18. $y = 4x - 16$
19. $y = -\frac{1}{2}x - 1$
20. $y = 3x - 4$
21. $y = \frac{1}{2}x - 3$
22. $y = -3x + 3$
23. $y = -2x + 8$
24. $y = -\frac{1}{3}x - 2$
25. $y = \frac{1}{2}x - 10$
26. $y = -\frac{1}{2}x - 4$
27. $y = -\frac{1}{4}x + \frac{7}{2}$
28. $y = x + 2$
29. $y = -\frac{4}{3}x + 2$
30. $y = \frac{4}{3}x + \frac{8}{3}$
31. $y = -\frac{1}{3}x$
32. $y = -\frac{1}{4}x - \frac{15}{4}$

Section 5:

1. $k = -5; y = -5x$
2. $k = \frac{7}{3}; y = \frac{7}{3}x$
3. $k = -\frac{4}{3}; y = -\frac{4}{3}x$
4. $k = \frac{1}{4}; y = \frac{1}{4}x$
5. $k = \frac{2}{7}; y = \frac{2}{7}x$
6. $k = \frac{5}{6}; y = \frac{5}{6}x$
7. $k = 2; y = 2x$
8. $k = -3; y = -3x$
9. $x = 3$
10. $x = 4$
11. $y = \frac{9}{2}$
12. $x = 10$
13. $z = \frac{5}{2}$
14. $y = -\frac{5}{4}$
15. $x = -1$
16. $z = \frac{1}{3}$
17. yes; $y = 3x$
18. no; there is no constant, k, such that $y = kx$
19. yes; $y = 2x$

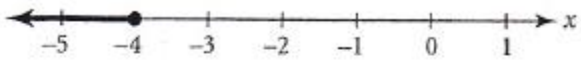
Section 6:

1. $x = 2$
2. $x = 5$
3. $x = 9$
4. $x = 6$
5. $x = 8$
6. $x = \frac{7}{8}$
7. $x = -2$
8. $x = -3$
9. $x = \frac{1}{2}$
10. $x = 2$
11. $x = 16$
12. $x = -21$
13. $x = -\frac{1}{3}$
14. $x = 7$
15. $x = -\frac{1}{3}$
16. $x = -\frac{6}{5}$
17. $x = 18$
18. $x = -\frac{5}{22}$
19. $x = -4$
20. $x = -6$
21. $x = -\frac{6}{7}$
22. $x = \frac{1}{2}$
23. $W = \frac{V}{LD}$
24. $r = \frac{C}{2\pi}$
25. $P_1 = \frac{V_2P_2}{V_1}$
26. $q_p = \frac{q}{D \times Q}$
27. $a = \frac{T_0 - T}{z - z_0}$
28. $h = \frac{A}{a + b}$

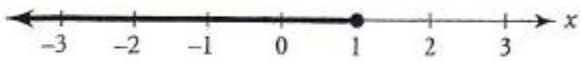
Section 7:

1. $x \geq -3$ 2. $x > 2$ 3. $x \leq 2$

4. $x \leq -4$

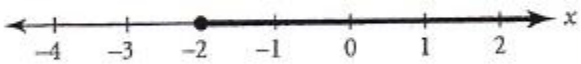


5. $x \leq 1$

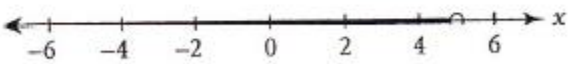


6. **All real numbers**

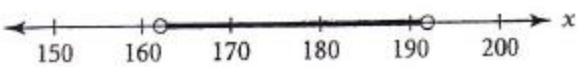
7. $x \geq -2$



8. $x < 5$

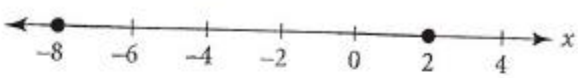


9. $162 < t < 192$

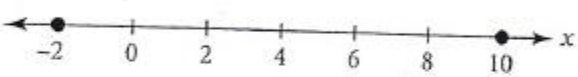


Section 8:

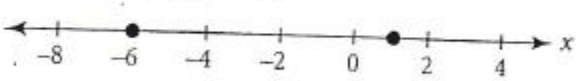
1. $x = 2$ *and* $x = -8$



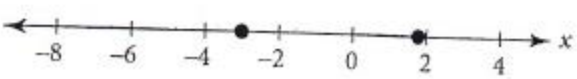
2. $x = 10$ *and* $x = -2$



3. $x = -6$ *and* $x = 1$

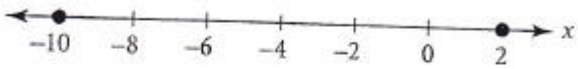


4. $x = \frac{9}{5}$ *and* $x = -3$

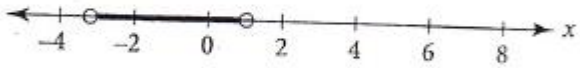


Section 8 (cont.)

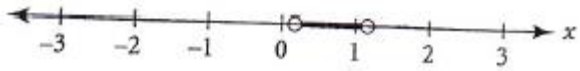
5. $x = -10$ *and* $x = 2$



6. $x < 1$ *and* $x > -\frac{9}{5}$

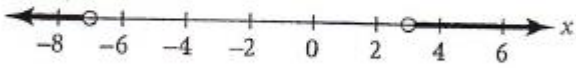


7. $x < \frac{7}{6}$ *and* $x > \frac{1}{6}$

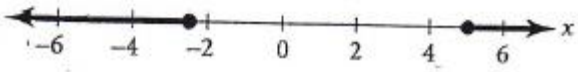


8. $x < \frac{11}{5}$ *and* $x > \frac{1}{5}$

9. $x < -7$ *or* $x > 3$



10. $x \leq -2.5$ *or* $x \geq 5$



Section 9:

1. rational, real
2. irrational, real
3. irrational, real
4. rational, real
5. integer, rational, real
6. rational, real
7. Inverse Property of Addition
8. Identity Property of Multiplication
9. Associative Property of Addition
10. Inverse Property of Multiplication
11. Commutative Property of Multiplication
12. Distributive Property
13. Identity Property of Addition

14. -33 15. 4 16. 43 17. 43 18. 49
19. 28 20. 26 21. 7.2 22. 56 23. 90

Section 10:

1. 1 2. $-\frac{1}{15}$ 3. 36 4. 1 5. -217
6. $\frac{9}{25}$ 7. 25 8. 32 9. 2 10. 16
11. 32 12. -9 13. $\frac{1}{d}$ 14. $w^4y^2z^2$ 15. $\frac{1}{k^8}$
16. x^{14} 17. z^{17} 18. $\frac{1}{x^{35}}$ 19. y^5z 20. 1
21. $81x^{12}y^{20}$ 22. $16a^{12}b^4c^{24}$ 23. $125a^6b^9$
24. $\frac{x^4}{w^2z^8}$ 25. $\frac{a^4}{b^6}$ 26. $\frac{w^{18}}{k^3}$ 27. $\frac{16p^4}{m^4}$
28. $\frac{1}{xy^3z^4}$ 29. $\frac{1}{xy^6}$ 30. $81x^{26}y^2$

Section 11:

1.	$5\sqrt{3}$	16.	$6\sqrt{3}$
2.	$6\sqrt{10}$	17.	$5\sqrt{2}$
3.	$4\sqrt{5}$	18.	$2\sqrt{7}$
4.	$2\sqrt{2}$	19.	$6\sqrt{2}$
5.	$4\sqrt{2}$	20.	$5\sqrt{6}$
6.	$2\sqrt{11}$	21.	$\frac{\sqrt{21}}{3}$
7.	$5\sqrt{5}$	22.	$\frac{3\sqrt{5}}{10}$
8.	$5\sqrt{7}$	23.	$5\sqrt{2}$
9.	$3\sqrt{5}$	24.	$2\sqrt{6}$
10.	$2\sqrt{5}$		
11.	4		
12.	$\sqrt{30}$	25.	$\frac{5\sqrt{3}}{6}$
13.	8		
14.	$12\sqrt{2}$		
15.	$2\sqrt{3}$		

Section 12:

1. $(-1.2, 4)$
2. $\left(-3, -3\frac{1}{2}\right)$
3. $\left(8\frac{1}{4}, -2\right)$
4. $\left(-8\frac{1}{2}, 1\right)$
5. $(-6, 11)$
6. $\left(7, 3\frac{1}{2}\right)$
7. $\left(6, 7\frac{1}{2}\right)$
8. $\left(\frac{2}{5}, -\frac{4}{5}\right)$
9. $\left(9, -\frac{3}{4}\right)$
10. a. $\begin{cases} 4n + 2r = 23.5 \\ 2n + 4r = 18.5 \end{cases}$

    b. \$7.00
11. a. 102

    b. 96

Section 13:

1. yes 2. yes 3. no 4. yes 5. yes
6. no 7. yes 8. no
9. domain: $\left\{-1, 0, \frac{1}{2}, \frac{3}{2}\right\}$; range: $\{-3, 1, 3, 7\}$
10. domain: $x \geq -5$; range: $y \geq -2$
11. domain: $\{-4.5, 3, 6.5, 12\}$;
    range: $\{6, -1.5, -5, -10.5\}$
12. domain: $\{-2, 0, 1, 5\}$; range: $\{12, 8, 9, 33\}$
13. $f(-2) = -44; f(8) = 156$
14. $f(-3) = 45; f(5) = 125$
15. $f(7) = -9; f(-5) = 27$
16. $f(11) = 361; f(-4) = 46$
17. $f(0.5) = 1.25; f(0) = 0$

Section 14:

1. $(f + g)(x) = 8x^2 + 5x - 13;$
   $(f - g)(x) = 6x^2 + 5x + 13$
2. $(f + g)(x) = 13x^2 - 5x + 41;$
   $(f - g)(x) = -13x^2 - 5x + 41$
3. $(f + g)(x) = x^2 - \frac{20}{3}x + 2;$
   $(f - g)(x) = x^2 + \frac{22}{3}x + 16$
4. $(f + g)(x) = 3x^2 + 6;$
   $(f - g)(x) = -21x^2 + 6$
5. $(f \cdot g)(x) = 175x + 25;$
   $\left(\frac{f}{g}\right)(x) = 7x + 1$
6. $(f \cdot g)(x) = 3x^3 + 17x^2 + 75x + 425;$
   $\left(\frac{f}{g}\right)(x) = \frac{x^2 + 25}{3x + 17}, x \neq -5\frac{2}{3}$
7. $(f \cdot g)(x) = x^4 - 256;$
   $\left(\frac{f}{g}\right)(x) = \frac{x^2 + 16}{x^2 - 16}, x \neq -4$ and $x \neq 4$
8. $(f + g)(x) = -x + 8$
9. $(f - g)(x) = -3x - 12$
10. $(g - f)(x) = 3x + 12$
11. $(f \cdot g)(x) = -2x^2 - 22x - 20$
12. $\left(\frac{f}{g}\right)(x) = -\frac{2x + 2}{x + 10}, x \neq -10$
13. $\left(\frac{g}{f}\right)(x) = -\frac{x + 10}{2x + 2}, x \neq -1$