

**ANSWERS TO THE
NEW
SCHOOL ALGEBRA**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649320042

Answers to the New School Algebra by G. A. Wentworth

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G. A. WENTWORTH

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BY
G. A. WENTWORTH

BOSTON, U.S.A.
GINN & COMPANY, PUBLISHERS
1899

✓
Educ T. 128.99.916

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ANSWERS.

Exercise 1. Page 9.

1. 75.	7. 900.	13. 54.	19. 360.	25. 10.	31. 10.
2. 6.	8. 320.	14. 432.	20. 336.	26. 12.	32. 0.
3. 84.	9. 432.	15. 0.	21. 1.	27. 10.	33. 6.
4. 40.	10. 72.	16. 720.	22. 7.	28. 6.	34. 24.
5. 324.	11. 27.	17. 375.	23. 5.	29. 10.	35. 30.
6. 36.	12. 216.	18. 0.	24. 0.	30. 6.	

Exercise 2. Page 10.

1. 1.	6. 5.	11. 19.	16. 13.	21. 8.	26. 8.
2. 5.	7. 14.	12. 2.	17. 12.	22. 0.	27. 5.
3. 5.	8. 86.	13. 12.	18. 0.	23. 8.	28. 74.
4. 7.	9. 18.	14. 25.	19. 1.	24. 4.	29. 6 $\frac{1}{2}$.
5. 3.	10. 2.	15. 1.	20. 5.	25. 8.	30. 17.

Exercise 3. Page 13.

1. 14.	3. 13.	5. 7.	7. 2.	9. 0.	11. 4.	13. 21.	15. 3.
2. 10.	4. 11.	6. 6.	8. 3.	10. 3.	12. 10.	14. 13.	16. 7.

Exercise 4. Page 14.

1. 69.	4. 56.	7. 17.	10. 35.	13. 3.	16. 5.
2. 76.	5. 49.	8. 8.	11. 14.	14. 11.	17. 0.
3. 34.	6. 15.	9. 1.	12. 24.	15. 13.	18. 2.

Exercise 5. Page 14.

1. 3.	3. 1.	5. 17.	7. 3.	9. 2 $\frac{1}{2}$.	11. 15.
2. 2 $\frac{1}{2}$.	4. 1.	6. 5.	8. 15.	10. 3.	12. 3.

Exercise 6. Page 19.

1. 4.	7. 4.	13. 4.	18. 5.	23. 41.	28. 5.
2. 7.	8. 4.	14. 12.	19. 1.	24. 7.	29. 6.
3. 2.	9. 11.	15. 4.	20. 2.	25. 6.	30. 5.
4. 9.	10. 9.	16. 4.	21. 18.	26. 5.	31. 16.
5. 11.	11. 2.	17. 3.	22. 2.	27. 6.	32. 6.
6. 3.	12. 5.				

Exercise 7. Page 20.

- | | | |
|---|---------------------------|---|
| 1. $a - b$; $a + b$; ab ; $\frac{a}{b}$; a^2 ; \sqrt{a} ; $\sqrt[3]{a}$; a^{2b^4} . | 12. $40 - 25$. | 26. $2x - 24 - (80 - 5x)$. |
| 2. $4x$; ax . | 13. $x - 5$. | 27. $5x + 24 - (60 - x)$. |
| 3. $\frac{1}{3}$; $\frac{x}{3}$. | 14. $s - a$. | 28. $50a + 25b$. |
| 4. $\frac{20}{x}$; $\frac{y}{x}$. | 15. $13 + 7$. | 29. $100a + 10b + c$. |
| 5. $\frac{3a}{b}$; $\frac{a}{b}$. | 16. $x + a$. | 30. $100a - 50b - 10c$. |
| 6. $4 \times 3 + 2$; $dq + r$. | 17. $x - c$. | 31. $100x + 10y + s$
$- 50a - 25b$. |
| 7. $\frac{22 - 2}{4}$; $\frac{p - r}{d}$. | 18. $a - 4$; $a + 4$. | 32. $(238 - a - c)$ miles. |
| 8. $\frac{22 - 2}{4}$; $\frac{p - r}{q}$. | 19. $x - b$; $x + a$. | 33. ma . |
| 9. $25 - 10$. | 20. $5x - 3x$. | 34. $\frac{a^2}{9}$. |
| 10. $30 - x$. | 21. $x - a$. | 35. $\frac{ab}{9}$. |
| 11. $x - c$. | 22. $x - a$. | 36. $\frac{ab - c^2}{9}$. |
| | 23. $2x + 3 - (x + 1)$. | |
| | 24. $3x - 4(18 - x)$. | |
| | 25. $x - 50 - (80 - x)$. | |

Exercise 8. Page 26.

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|---|--|
| 1. 90. | 30. Sheep, \$6; cow, \$42; horse, \$168. |
| 2. Father, 49 years; son, 7 years. | 31. Henry, \$3; Thomas, \$6; Richard, \$6. |
| 3. 128; 23. | 32. A, \$100; B, \$400; C, \$500. |
| 4. Left standing, 10 feet; broken off, 90 feet. | 33. James, 4 years; John, 12 years. |
| 5. 35; 28. | 34. 16. |
| 6. 36; 23. | 35. 23. |
| 7. 21; 15. | 36. 3; 12. |
| 8. 18. | 37. Cloth, \$1; silk, \$2. |
| 9. 10. | 38. 18 children; 54 women; 108 men. |
| 10. 32; 8. | 39. 8. |
| 11. 27; 21. | 40. \$240. |
| 12. 35; 7. | 41. Left standing, 14 feet; broken off, 70 feet. |
| 13. 35; 36; 37. | 42. 1480; 1320. |
| 14. 12; 13; 14; 15; 16. | 43. 11; 9. |
| 15. 48. | 44. 18; 34. |
| 16. 16. | 45. 7; 12. |
| 17. 7. | 46. 18. |
| 18. 35. | 47. 4. |
| 19. 5. | 48. 61. |
| 20. 12. | 49. 4; 15. |
| 21. 27. | 50. Son, 30 years; father, 60 years. |
| 22. 1050; 950. | |
| 23. 8. | |
| 24. 51; 3. | |
| 25. 50. | |
| 26. 6000. | |
| 27. 21 inches; 15 inches. | |
| 28. 12; 11. | |
| 29. 27; 36. | |

51. Son, 10 years; father, 40 years. 54. 22. 55. 24.
 52. Son, 14 years; father, 35 years. 56. 2 miles an hour. 57. \$11.
 53. 18 miles. 58. A, \$3; B, \$5; C, \$7.
 59. 14. 60. 11.
 61. A, \$7 $\frac{1}{2}$; B, \$2 $\frac{1}{2}$; C, \$1 $\frac{1}{2}$.
 62. Son, 26 years; father, 54 years. 63. 42 gallons.
 64. 60 pounds at \$0.50; 40 pounds at \$0.75. 65. \$2.
 66. 4 dozen at \$0.25; 5 dozen at \$0.30.
 67. 5 quarters and 10 ten-cent pieces.
 68. 6 ten-cent pieces and 24 five-cent pieces.
 69. 16 quarters and 4 half-dollars.
 70. 4 quarters and 20 half-dollars.
 71. 5 ten-dollar bills; 15 one-dollar bills.
 72. A, \$2.50; B, \$3.50; C, \$4.00.
 73. 3 silver dollars; 9 half-dollars; 15 quarters.
 74. Calico, 6 cents; cloth, \$1.50.
 75. 5 dollars; 10 half-dollars; 20 quarters.

Exercise 9. Page 37.

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|---------|---------|----------|----------|----------|-----------|
| 1. +1. | 5. +7. | 9. -22. | 13. +7. | 17. +2. | 21. +1. |
| 2. -1. | 6. -15. | 10. +40. | 14. +3. | 18. -29. | 22. -3. |
| 3. -14. | 7. -11. | 11. +9. | 15. -22. | 19. +20. | 23. -215. |
| 4. -7. | 8. -6. | 12. -17. | 16. -10. | 20. -42. | 24. +50. |

Exercise 10. Page 38.

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|----------|----------|-----------------------|--|
| 1. 2a. | 4. -6ab. | 7. -4x ⁴ . | 10. -17y ⁴ z ⁴ . |
| 2. 10xy. | 5. 16c. | 8. -7m ² . | 11. 0. |
| 3. -yz. | 6. 0. | 9. -2abc. | 12. -19y ⁶ . |

Exercise 11. Page 39.

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|------------------------|-------------------------|--------------------------|---------------------------------------|-------------------------|
| 1. a. | 8. ac. | 15. -34c ² . | 22. 15abcx. | 28. - $\frac{1}{3}xy$. |
| 2. 0. | 9. 21yz. | 16. -9m ² . | 23. 10y ⁴ z ⁴ . | 29. - $\frac{2}{3}z$. |
| 3. -4a ² b. | 10. -12ab. | 17. x ² . | 24. -3x ⁵ y ⁵ . | 30. $\frac{1}{2}ays$. |
| 4. 11xy. | 11. 4x ² . | 18. -23a ² . | 25. abz ³ . | 31. a. |
| 5. 6b. | 12. 13y ³ . | 19. -22a ³ x. | 26. $\frac{1}{2}a$. | 32. -8a ² c. |
| 6. 3c. | 13. -12x ⁴ . | 20. 0. | 27. $\frac{1}{4}a^2$. | 33. 5x ² y. |
| 7. zz. | 14. -3y ² . | 21. -15ax ³ . | | |

Exercise 12. Page 41.

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|---------|--------|--------|---------|----------|---------|
| 1. 8. | 4. 14. | 7. -5. | 10. 12. | 13. -15. | 16. -1. |
| 2. -8. | 5. -8. | 8. 11. | 11. 6. | 14. -15. | 17. 10. |
| 3. -14. | 6. 8. | 9. 5. | 12. -6. | 15. 15. | 18. 10. |

Exercise 13. Page 41.

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|-------------|---------------|-----------------|------------|
| 1. $27b$. | 5. $-10m^2$. | 9. $4abc$. | 13. 9. |
| 2. $12yz$. | 6. $70c$. | 10. $-4ac^2x$. | 14. 3. |
| 3. $-3ab$. | 7. $-70c$. | 11. 3. | 15. -9 . |
| 4. $4a^2$. | 8. $12c$. | 12. -9 . | 16. 5. |

Exercise 14. Page 46.

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|---------------|--------------------|-------------------|----------------------|
| 1. $6a^2$. | 9. $-56a^3$. | 17. a^4b^4 . | 25. $30abx^5y^5$. |
| 2. $6a^2$. | 10. $-56m^3$. | 18. $54a^{m+n}$. | 26. $-48a^6b^5$. |
| 3. $-6a^2$. | 11. $-5x^4y^4$. | 19. a^{2m} . | 27. $-3a^2b^3c^2$. |
| 4. $-6a^2$. | 12. $-a^4b^4c^5$. | 20. $-2x^n$. | 28. $3x^5y^5z^5$. |
| 5. $54a^3$. | 13. $9a^8x^2$. | 21. x^{2m+1} . | 29. $1000a^{7b^7}$. |
| 6. $-54a^3$. | 14. $30a^3c^4$. | 22. a^{n+1} . | 30. $48a^4b^7$. |
| 7. $35x^7$. | 15. $-21x^{12}$. | 23. y^{2m+2} . | 31. a^{3n+2} . |
| 8. $7a^5$. | 16. $54a^2b^3$. | 24. x^n . | 32. x^{5m-1} . |

Exercise 15. Page 48.

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|---------------|------------------------|--------------------------|-----------------|
| 1. $2b$. | 11. $9ac^2$. | 21. a^2x^7 . | 31. $3cy$. |
| 2. $2ac^2$. | 12. $-9bx$. | 22. $-3x^2y$. | 32. $2a^2b^2$. |
| 3. $4y^2$. | 13. $-3x^2y^2z$. | 23. $-4cd^2$. | 33. ab^4 . |
| 4. $2x^2y$. | 14. $2c$. | 24. $-4x^2$. | 34. z . |
| 5. $9axc^3$. | 15. $\frac{1}{2}x^2$. | 25. $-4x^2yz$. | 35. y^2z^5 . |
| 6. $-4cy^2$. | 16. $-8a^2y^2$. | 26. ac . | 36. $2c^4y$. |
| 7. $3ax^2$. | 17. $3b^2$. | 27. $-3a^2$. | 37. $2a^3$. |
| 8. $7ax^2$. | 18. $-2abz^2$. | 28. $2x^{n-2}y^{n-1}$. | 38. $2a^3$. |
| 9. $-9yz$. | 19. $-2x$. | 29. $-6x^{n-4}y^{n-3}$. | 39. $-3xy$. |
| 10. $6x^2z$. | 20. $-3a^3$. | 30. $x^5-y^4-z^n$. | 40. xz^2 . |

Exercise 16. Page 51.

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|--|------------------------------------|
| 1. $2a$. | 6. $9x + 2y - z$. |
| 2. $x^3 - x$. | 7. $3ax^2 - 7a^2x + 2x^3$. |
| 3. $8x^2 - x$. | 8. $4a^4 - 7a^3 + 7a^2 - 2x + 8$. |
| 4. $4x^2 - 4xy + 4y^2$. | 9. $4a^2 - 2b^2 + 6c^2$. |
| 5. $-3bx + 5$. | 10. $10x^4 + x^3 + x^2 - x$. |
| 11. $6y^3 - 13xy^2 - 3x^2y + 6x^3 - 17xz^2 - z^3$. | |
| 12. $2a^4 + 4a^3 + 5a^2 - a - 4$. | |
| 13. $4x^3 - 4x^2y - 10xy^2 - 15y^3$. | |
| 14. $-c^4 + c^3 + c + 8$. | |
| 15. $4x^2 - 2xy - xz - 2y^2 + 2z^2 + 12yz - 6y - 6z$. | |
| 16. $2m^5 - 5m^4n - 5m^3n^2 + 3m^2n^3 - 4mn^4 - n^5$. | |
| 17. $7xy^2 - 6x^2y + 2$. | |

Exercise 17. Page 53.

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|---|-----------------------------|
| 1. $6a - b + c.$ | 8. $a^2 - 7ab + b^2.$ |
| 2. $a + 4b + 4c + d.$ | 9. $4a^2b + 10ab^2 + 1.$ |
| 3. $2a^2 - 3x + 2.$ | 10. $10a^2c - 8a^3 - b^2.$ |
| 4. $x^2 - ax + 2a^2.$ | 11. $a^2 - 2b^2.$ |
| 5. $2a - 7c.$ | 12. $-b^2.$ |
| 6. $2x^2 + 14x + 2.$ | 13. $-a^2 + 2b^2.$ |
| 7. $-ax + 6by + 10.$ | 14. $b^2.$ |
| 15. $-2x^4 + 2ax^3 + 2bx^2 - 3cx - 5d.$ | |
| 16. $8a^2 - 12ab + 17b^2.$ | 19. $-10a^2 - 2ab + 11b^2.$ |
| 17. $-2a^2 + 8ab - 7b^2.$ | 20. $16a^2 - 2ab - b^2.$ |
| 18. $6a^2 - 4ab - 7b^2.$ | 21. $12a^2 - 8ab + 3b^2.$ |

Exercise 18. Page 55.

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|--------------------------------|---------------|--------------------|----------------|
| 1. 0. | 4. $5c - 3b.$ | 7. $3x - 3y.$ | 10. $a.$ |
| 2. $p - n.$ | 5. $d - c.$ | 8. $-3c.$ | 11. $a + 5c.$ |
| 3. $4x - 4z.$ | 6. $2x - 2.$ | 9. $2a.$ | 12. $-x + 2y.$ |
| 13. $-11a.$ | | 16. $4a - 2c - b.$ | |
| 14. $2x - 3y - z - b + a - c.$ | | 19. $-2a + b + c.$ | |
| 15. $5a - b - c.$ | | 20. $8a - b.$ | |
| 18. $15 - z.$ | | 21. $23 - 15a.$ | |
| 17. $-2x - 2y + 6z.$ | | 22. $x - 6y + 4z.$ | |

Exercise 19. Page 56.

- $2a - b + 3c - (d - 3e + 5f).$
- $x - a - y - (b + z + c).$
- $a + b - c - (-4a + b - 1).$
- $ax + by + cz - (-bx + cy - cz).$
- $3a + 2b + 2c - (5d + 3e + 4f).$
- $x - y + z - (5xy + 4xz - 3yz).$
- $(a + b)x + (b - c)y + (a + c)z.$
- $(a - b)x + (2a + 3)y + (4a - 3b - 2)z.$
- $(a - 4b)x - (2b - 3c)y - (7a + 5c)z.$
- $(a - 11c)x + (3a + 2b + 2c)y - (b + c)z.$
- $(2b - 3a - 7c - 1)x + (4b - 5c - 1)y - (6c + 1)z.$
- $-x - (3a + 5b - 1)y + (6a - 2b + 3c + 1)z.$
- $(2a - 2m)x - (b + 3c)y + (3a - 5b + 1)z.$
- $(1 - ac)x - (1 - a + mn)y - (1 + a - bc)z.$
- $(2a - 4b - 2c)x - (6a + 3c)y + 4bz.$
- $(a - b)x + (2a + 3)y + (4a - 3b - 2)z.$
- $(a - 4b - 2c)x - (a + 2b + 3c)y + (a + 4b + 5c)z.$
- $(12a - 15c)x + (12a + 4b + 6c)y - (12b - 3c)z.$