

Diagnostic Test

Pages 1–11

1. A	8. A	15. C	22. B	29. D	36. B	43. D	50. C	57. C	64. C
2. D	9. A	16. A	23. A	30. D	37. C	44. A	51. D	58. C	65. C
3. C	10. A	17. B	24. D	31. A	38. C	45. D	52. C	59. B	66. B
4. A	11. C	18. B	25. A	32. A	39. D	46. C	53. A	60. A	67. A
5. B	12. B	19. B	26. B	33. A	40. C	47. B	54. C	61. C	68. C
6. B	13. D	20. A	27. A	34. C	41. A	48. A	55. B	62. B	69. B
7. A	14. B	21. C	28. D	35. C	42. A	49. B	56. D	63. C	70. D

Chapter 1 Number Systems and Integers

Pages 13–14 Real Numbers

1. 2.6457513; it does not repeat or end; it is irrational	3. no	8. R	13. R	18. R
2. 5; rational; integer	4. yes	9. R	14. R	19. R
	5. yes; rational	10. R	15. R	20. R
	6. I	11. I	16. R	
	7. I	12. I	17. I	

Page 14 Absolute Value

1. 9	4. -12	7. -3	10. 9	13. 6
2. -5	5. -64	8. 1	11. 8	14. 7
3. 25	6. 2	9. 4	12. 18	15. 2

Page 15 Adding Integers

1. -1	4. 0	7. 5	10. -4	13. -2	16. -2	19. -3	22. 2
2. 2	5. 4	8. 3	11. -1	14. 1	17. 4	20. 3	23. 2
3. 4	6. -5	9. -4	12. -3	15. -6	18. 4	21. -4	24. -7

Page 16 Rules for Adding Integers with the Same Signs

1. -22	6. 25	11. -20	16. 15	21. -18	26. 23
2. -15	7. 27	12. 11	17. 16	22. 14	27. 21
3. -9	8. -17	13. -6	18. -16	23. 12	28. -30
4. 33	9. 12	14. -16	19. -20	24. -13	29. 24
5. -13	10. -11	15. -20	20. 25	25. 10	30. -29

Page 17 Rules for Adding Integers with Opposite Signs

1. 4	7. -7	13. -5	19. -6	25. 6	31. 1	37. 3	43. 3
2. 2	8. 12	14. 3	20. 6	26. 10	32. 11	38. 7	44. 15
3. 6	9. -1	15. -8	21. -6	27. -9	33. -8	39. -21	45. 17
4. 0	10. -6	16. 2	22. 4	28. 4	34. -2	40. 5	46. -14
5. 1	11. -10	17. 14	23. 8	29. -8	35. -16	41. -1	47. 8
6. 7	12. -4	18. -3	24. -13	30. -7	36. 23	42. -31	48. -16

Page 18 Subtracting Integers

1. -11	7. 8	13. -11	19. 6	25. 6	31. 3	37. -25
2. 14	8. 13	14. 10	20. 4	26. 7	32. 4	38. -1
3. 13	9. 14	15. -17	21. 10	27. -2	33. 1	39. -20
4. 4	10. 0	16. -10	22. -6	28. 13	34. -10	40. 65
5. 17	11. -10	17. 13	23. -5	29. 4	35. 15	41. -18
6. -3	12. -12	18. 4	24. -14	30. -15	36. -35	42. -20

Page 19 Rules for Multiplying and Dividing Integers

1. -2	4. -5	7. 4	10. 24	13. -15	16. -2	19. 28
2. -4	5. 21	8. -10	11. 3	14. -42	17. -32	20. 1
3. 7	6. -5	9. -21	12. -3	15. -40	18. -8	21. -3

Page 20 Mixed Integer Practice

1. 7	4. -6	7. -2	10. -3	13. -13	16. -21	19. 4	22. -14	25. -30
2. -12	5. -6	8. 1	11. 4	14. 3	17. -13	20. 2	23. 40	26. 3
3. -16	6. 4	9. -4	12. -2	15. 63	18. -8	21. -2	24. -6	27. 3

Chapter 1 Review

Page 20

1. 4	5. 28	9. -40	13. -7	17. 10
2. 6	6. 15	10. -4	14. 4	18. -9
3. 10	7. -3	11. 0	15. -12	19. 4
4. 3	8. -16	12. -49	16. -14	20. -11

Chapter 1 Test

Pages 21–22

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|------|------|------|------|-------|-------|-------|-------|
| 1. B | 3. C | 5. D | 7. C | 9. C | 11. C | 13. D | 15. D |
| 2. B | 4. D | 6. D | 8. A | 10. C | 12. B | 14. C | 16. C |

Chapter 2 Fractions

Page 23 Least Common Multiple

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|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 1. 30 | 3. 36 | 5. 24 | 7. 28 | 9. 30 | 11. 36 | 13. 90 | 15. 36 | 17. 15 |
| 2. 48 | 4. 21 | 6. 24 | 8. 18 | 10. 42 | 12. 35 | 14. 24 | 16. 45 | 18. 44 |

Page 24 Finding Numerators

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|-------|--------|--------|--------|--------|--------|
| 1. 6 | 6. 30 | 11. 15 | 16. 4 | 21. 18 | 26. 5 |
| 2. 18 | 7. 9 | 12. 12 | 17. 9 | 22. 12 | 27. 8 |
| 3. 8 | 8. 6 | 13. 24 | 18. 12 | 23. 3 | 28. 12 |
| 4. 21 | 9. 10 | 14. 2 | 19. 14 | 24. 21 | 29. 42 |
| 5. 45 | 10. 12 | 15. 35 | 20. 22 | 25. 4 | 30. 12 |

Page 25 Simplifying Improper Fractions

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

Page 26 Changing Mixed Numbers to Improper Fractions

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|-------------------|--------------------|---------------------|--------------------|--------------------|--------------------|
| 1. $\frac{7}{2}$ | 6. $\frac{69}{8}$ | 11. $\frac{18}{5}$ | 16. $\frac{23}{6}$ | 21. $\frac{4}{1}$ | 26. $\frac{5}{1}$ |
| 2. $\frac{23}{8}$ | 7. $\frac{9}{7}$ | 12. $\frac{75}{8}$ | 17. $\frac{52}{7}$ | 22. $\frac{10}{1}$ | 27. $\frac{6}{1}$ |
| 3. $\frac{29}{3}$ | 8. $\frac{22}{9}$ | 13. $\frac{54}{5}$ | 18. $\frac{61}{9}$ | 23. $\frac{3}{1}$ | 28. $\frac{11}{1}$ |
| 4. $\frac{23}{5}$ | 9. $\frac{31}{5}$ | 14. $\frac{33}{10}$ | 19. $\frac{37}{5}$ | 24. $\frac{2}{1}$ | 29. $\frac{8}{1}$ |
| 5. $\frac{29}{4}$ | 10. $\frac{37}{7}$ | 15. $\frac{29}{7}$ | 20. $\frac{13}{7}$ | 25. $\frac{15}{1}$ | 30. $\frac{16}{1}$ |

Page 27 Comparing the Relative Magnitude of Fractions

- | | | | | | |
|------|------|------|------|-------|-------|
| 1. < | 3. < | 5. > | 7. > | 9. < | 11. > |
| 2. > | 4. < | 6. > | 8. > | 10. < | 12. < |

Page 28 Ordering Fractions

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|---------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|-------------------|-------------------|
| 1. $\frac{5}{6}; \frac{1}{12}$ | 3. $\frac{2}{3}; \frac{1}{6}$ | 5. $\frac{7}{9}; \frac{5}{12}$ | 7. $\frac{5}{6}; \frac{1}{2}$ | 9. $\frac{6}{7}; \frac{10}{21}$ | 11. $\frac{3}{8}$ | 13. $\frac{3}{4}$ |
| 2. $\frac{3}{4}; \frac{11}{20}$ | 4. $\frac{4}{5}; \frac{3}{10}$ | 6. $\frac{5}{9}; \frac{1}{4}$ | 8. $\frac{7}{9}; \frac{3}{18}$ | 10. $\frac{7}{8}; \frac{1}{4}$ | 12. $\frac{3}{8}$ | |

Page 29 Fraction Word Problems

- | | | | | |
|---------------------|--------|--------------------|----------------------|---------------------|
| 1. $2\frac{53}{60}$ | 3. 96 | 5. $13\frac{1}{3}$ | 7. $47\frac{17}{60}$ | 9. $\frac{7}{12}$ |
| 2. $4\frac{1}{2}$ | 4. 750 | 6. $1\frac{5}{6}$ | 8. $1\frac{5}{6}$ | 10. $12\frac{1}{2}$ |

Chapter 2 Review

Page 30

- | | | | | |
|-------|---------------------|--------------------|----------------------------------|------------------------------------|
| 1. > | 9. 27 | 16. $5\frac{1}{3}$ | 23. $\frac{17}{4}$ | 30. $\frac{25}{28}; \frac{17}{36}$ |
| 2. < | 10. 20 | 17. $3\frac{3}{4}$ | 24. $\frac{41}{7}$ | 31. $\frac{1}{4}$ pound |
| 3. < | 11. 24 | 18. $1\frac{1}{6}$ | 25. $\frac{34}{9}$ | 32. $9\frac{3}{5}$ yards |
| 4. < | 12. 33 | 19. 3 | 26. $\frac{23}{3}$ | 33. 12 feet |
| 5. 20 | 13. $4\frac{1}{6}$ | 20. $3\frac{1}{2}$ | 27. $\frac{25}{6}$ | 34. $12\frac{5}{6}$ miles |
| 6. 18 | 14. $2\frac{1}{5}$ | 21. $\frac{16}{7}$ | 28. $\frac{77}{9}$ | 35. $2\frac{17}{60}$ miles |
| 7. 10 | 15. $11\frac{1}{2}$ | 22. $\frac{27}{8}$ | 29. $\frac{10}{16}; \frac{1}{3}$ | 36. $17\frac{1}{2}$ gallons |
| 8. 56 | | | | |

Chapter 2 Test

Page 31

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|------|------|------|------|------|------|------|------|
| 1. A | 2. C | 3. B | 4. C | 5. C | 6. C | 7. B | 8. C |
|------|------|------|------|------|------|------|------|

Chapter 3 Decimals

Page 32 Ordering Decimals

- | | | |
|----------------------------|------------------------------|------------------------------|
| 1. 0.75, 0.705, 0.7, 0.075 | 6. 0.5, 0.25, 0.205, 0.02 | 11. 0.7, 0.72, 0.732, 0.74 |
| 2. 0.65, 0.56, 0.5, 0.06 | 7. 0.44, 0.4, 0.045, 0.004 | 12. 0.04, 0.048, 0.408, 0.48 |
| 3. 0.95, 0.9, 0.099, 0.09 | 8. 0.905, 0.59, 0.509, 0.099 | 13. 0.09, 0.9, 0.905, 0.95 |
| 4. 0.66, 0.6, 0.59, 0.06 | 9. 0.111, 0.11, 0.1, 0.01 | 14. 0.09, 0.1, 0.19, 0.9 |
| 5. 0.33, 0.303, 0.3, 0.03 | 10. 0.05, 0.055, 0.5, 0.59 | 15. 0.02, 0.021, 0.2, 0.21 |

Page 33 Changing Fractions to Decimals

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|----------------------|----------------------|-----------------------|-----------------------|------------------------|
| 1. 0.8 | 5. 0.1 | 9. 0.6 | 13. $0.\overline{77}$ | 17. 0.1875 |
| 2. $0.\overline{6}$ | 6. 0.625 | 10. 0.7 | 14. 0.9 | 18. 0.75 |
| 3. 0.5 | 7. $0.8\overline{3}$ | 11. $0.\overline{36}$ | 15. 0.25 | 19. $0.\overline{8}$ |
| 4. $0.\overline{55}$ | 8. $0.1\overline{6}$ | 12. $0.\overline{11}$ | 16. 0.375 | 20. $0.41\overline{6}$ |

Page 34 Changing Mixed Numbers to Decimals

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|-----------------------|-----------------------|------------|------------------------|-----------------------|
| 1. $5.\overline{66}$ | 5. $30.\overline{33}$ | 9. 6.8 | 13. 7.25 | 17. 10.1 |
| 2. $8.\overline{45}$ | 6. 3.5 | 10. 13.5 | 14. $12.\overline{33}$ | 18. 20.4 |
| 3. 15.6 | 7. 1.875 | 11. 12.8 | 15. 1.625 | 19. 4.9 |
| 4. $13.\overline{66}$ | 8. 4.09 | 12. 11.625 | 16. 2.75 | 20. $5.\overline{36}$ |

Page 34 Changing Decimals to Fractions

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|--------------------|-------------------|--------------------|-------------------|---------------------|---------------------|---------------------|-------------------|
| 1. $\frac{11}{50}$ | 3. $\frac{3}{25}$ | 5. $\frac{3}{4}$ | 7. $\frac{3}{10}$ | 9. $\frac{71}{100}$ | 11. $\frac{14}{25}$ | 13. $\frac{7}{20}$ | 15. $\frac{1}{8}$ |
| 2. $\frac{3}{5}$ | 4. $\frac{9}{10}$ | 6. $\frac{41}{50}$ | 8. $\frac{5}{8}$ | 10. $\frac{21}{50}$ | 12. $\frac{6}{25}$ | 14. $\frac{24}{25}$ | 16. $\frac{3}{8}$ |

Page 35 Changing Decimals with Whole Numbers to Mixed Numbers

- | | | | | | | | |
|--------------------|----------------------|----------------------|----------------------|-----------------------|---------------------|-----------------------|----------------------|
| 1. $7\frac{1}{8}$ | 3. $2\frac{13}{100}$ | 5. $16\frac{19}{20}$ | 7. $4\frac{21}{50}$ | 9. $6\frac{7}{10}$ | 11. $15\frac{4}{5}$ | 13. $13\frac{9}{10}$ | 15. $17\frac{1}{4}$ |
| 2. $99\frac{1}{2}$ | 4. $5\frac{1}{10}$ | 6. $3\frac{5}{8}$ | 8. $15\frac{21}{25}$ | 10. $45\frac{17}{40}$ | 12. $8\frac{4}{25}$ | 14. $32\frac{13}{20}$ | 16. $9\frac{41}{50}$ |

Page 36 Ordering Positive and Negative Fractions and Decimals

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|--|--|
| 1. $-4.5, -\frac{4}{5}, 0.45, \frac{4}{5}, 4.5$ | 11. $2.5, \frac{2}{5}, 0.25, -\frac{2}{5}, -2.5$ |
| 2. $-1.6, -\frac{1}{4}, -\frac{1}{6}, -0.16, -0.016$ | 12. $-0.036, -\frac{1}{4}, -0.36, -\frac{1}{2}, -3.6$ |
| 3. $-\frac{2}{3}, -\frac{1}{3}, -0.33, 0.3, \frac{1}{3}$ | 13. $0.4, \frac{1}{4}, -\frac{1}{4}, -0.3, -\frac{3}{4}$ |
| 4. $-7.7, -0.77, -\frac{7}{10}, \frac{7}{10}, 7.2$ | 14. $8.8, \frac{8}{10}, -\frac{8}{10}, -0.88, -8.8$ |
| 5. $-9.8, -0.098, \frac{8}{9}, 0.98, \frac{9}{8}$ | 15. $\frac{9}{10}, \frac{1}{9}, -0.09, -0.9, -9$ |
| 6. $-1, -0.1, -\frac{1}{100}, \frac{1}{10}, 1$ | 16. $2, \frac{2}{10}, -\frac{2}{100}, -0.2, -2$ |
| 7. $-2.3, -\frac{2}{3}, 0.23, \frac{2}{3}, 2.3$ | 17. $5.6, \frac{5}{6}, 0.56, -\frac{5}{6}, -5.6$ |
| 8. $-3.4, -\frac{3}{4}, -0.34, \frac{3}{4}, \frac{4}{3}$ | 18. $\frac{7}{5}, \frac{5}{6}, 0.56, -\frac{5}{6}, -5.6$ |
| 9. $-6.6, -\frac{2}{3}, -0.6, -\frac{1}{3}, -0.07$ | 19. $-0.07, -\frac{1}{3}, -0.6, -\frac{2}{3}, -6.6$ |
| 10. $-2.1, -\frac{1}{2}, -0.21, \frac{1}{2}, 2.1$ | 20. $1.1, \frac{2}{11}, -\frac{1}{11}, -0.11, -1.1$ |

Page 37 Fraction and Decimal Review

- | | | |
|-----------------------|----------------------|---------------|
| 1. $9\frac{2}{9}$ | 17. $-2\frac{1}{10}$ | 33. 22.35 |
| 2. $3\frac{3}{20}$ | 18. $2\frac{6}{7}$ | 34. 0.55 |
| 3. $13\frac{1}{9}$ | 19. $1\frac{1}{2}$ | 35. -33.487 |
| 4. $8\frac{1}{12}$ | 20. $3\frac{1}{3}$ | 36. \$38.62 |
| 5. $13\frac{11}{30}$ | 21. $\frac{13}{18}$ | 37. \$213.79 |
| 6. $\frac{7}{45}$ | 22. 4 | 38. \$1.01 |
| 7. $2\frac{7}{9}$ | 23. $-1\frac{3}{11}$ | 39. 53.2 |
| 8. $\frac{11}{18}$ | 24. $3\frac{1}{7}$ | 40. 50.562 |
| 9. $-13\frac{19}{21}$ | 25. $12\frac{1}{2}$ | 41. -36.036 |
| 10. $1\frac{9}{10}$ | 26. $-4\frac{1}{6}$ | 42. 15.36 |
| 11. $3\frac{1}{10}$ | 27. $\frac{1}{5}$ | 43. -100.76 |
| 12. $4\frac{13}{20}$ | 28. 12.05 | 44. 52 |
| 13. $4\frac{4}{5}$ | 29. 9.705 | 45. -879 |
| 14. $-1\frac{2}{7}$ | 30. 1.612 | 46. \$65 |
| 15. $9\frac{3}{4}$ | 31. \$13.39 | 47. \$23 |
| 16. $17\frac{1}{2}$ | 32. \$14.15 | 48. 14.2 |

Page 38 Changing Percents to Decimals and Decimals to Percents

1. 0.18	8. 1.19	15. 0.05	22. 15%	29. 4.4%	36. 4.2%
2. 0.23	9. 0.07	16. 0.25	23. 62%	30. 58%	37. 37.5%
3. 0.09	10. 0.55	17. 4.10	24. 153%	31. 86%	38. 509%
4. 0.63	11. 0.80	18. 0.01	25. 22%	32. 29%	39. 75%
5. 0.04	12. 0.17	19. 0.50	26. 35%	33. 6%	40. 30%
6. 0.45	13. 0.66	20. 0.99	27. 37.5%	34. 48%	41. 290%
7. 0.02	14. 0.13	21. 1.07	28. 64.8%	35. 308.9%	42. 6%

Page 39 Changing Percents to Fractions

1. $\frac{1}{2}$	5. $\frac{13}{25}$	9. $\frac{9}{50}$	13. $\frac{4}{25}$	17. $\frac{99}{100}$
2. $\frac{13}{100}$	6. $\frac{63}{100}$	10. $\frac{3}{100}$	14. $\frac{1}{100}$	18. $\frac{3}{10}$
3. $\frac{11}{50}$	7. $\frac{3}{4}$	11. $\frac{1}{4}$	15. $\frac{79}{100}$	19. $\frac{3}{20}$
4. $\frac{19}{20}$	8. $\frac{91}{100}$	12. $\frac{1}{20}$	16. $\frac{2}{5}$	20. $\frac{21}{25}$

Page 39 Changing Fractions to Percents

1. 20%	4. 37.5%	7. 10%	10. 75%	13. 6.25%	16. 75%
2. 62.5%	5. 18.75%	8. 80%	11. 12.5%	14. 25%	17. 40%
3. 43.75%	6. 19%	9. 93.75%	12. 31.25%	15. 4%	18. 64%

Page 40 Comparing the Relative Magnitude of Numbers

1. <	5. <	9. <	13. =	17. <	21. <
2. =	6. >	10. =	14. =	18. >	22. =
3. =	7. >	11. <	15. >	19. <	23. >
4. >	8. >	12. =	16. <	20. >	

Page 41 Decimal Word Problems

1. \$11.20	3. \$9.99	5. \$645.33	7. 1211	9. \$896.05	11. \$1.26
2. \$18.75	4. \$2.45	6. \$26.24	8. 25.38	10. \$62.11	12. 10

Chapter 3 Review
Pages 42–43

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|----------------------------|---|--------------------|
| 1. $\frac{11}{20}$ | 21. $\frac{17}{25}$ | 41. 8 |
| 2. $\frac{21}{25}$ | 22. $1\frac{1}{50}$ | 42. $\frac{5}{9}$ |
| 3. $\frac{8}{25}$ | 23. 90% | 43. $\frac{5}{8}$ |
| 4. 5.12 | 24. 31.25% | 44. $2\frac{4}{7}$ |
| 5. 0.07 | 25. 12.5% | 45. $\frac{1}{3}$ |
| 6. $10.\overline{66}$ | 26. 25% | 46. $\frac{5}{12}$ |
| 7. 0.55, 0.505, 0.5, 0.05 | 27. $-0.5, -\frac{1}{3}, \frac{1}{4}, 0.4, 3$ | 47. 19.019 |
| 8. 1.89, 1.08, 0.98, 0.9 | 28. $\frac{1}{12}, 10\%, \frac{1}{9}, 0.12, 1.12$ | 48. 19.943 |
| 9. 0.109, 0.19, 0.2, 0.22 | 29. $<$ | 49. 164.964 |
| 10. 0.79, 1.709, 1.75, 1.8 | 30. $>$ | 50. 8.927 |
| 11. 0.45 | 31. $1\frac{1}{3}$ | 51. 1.757 |
| 12. 2.19 | 32. $10\frac{7}{8}$ | 52. 7.3 |
| 13. 0.22 | 33. $4\frac{7}{15}$ | 53. 0.1145 |
| 14. 0.0125 | 34. $\frac{4}{7}$ | 54. 1.4943 |
| 15. 52% | 35. $4\frac{7}{8}$ | 55. 0.12587 |
| 16. 64% | 36. $2\frac{7}{12}$ | 56. 320 |
| 17. 109% | 37. $7\frac{3}{8}$ | 57. 142 |
| 18. 62.5% | 38. $4\frac{9}{10}$ | 58. 0.235 |
| 19. $\frac{1}{4}$ | 39. $4\frac{2}{3}$ | 59. 23 |
| 20. $\frac{3}{100}$ | 40. $4\frac{3}{4}$ | 60. 34.8 pounds |
| | | 61. 42.3 seconds |
| | | 62. \$1400 |

Chapter 3 Test
Pages 44–46

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|------|------|------|-------|-------|-------|-------|-------|
| 1. C | 4. C | 7. A | 10. C | 13. B | 16. C | 19. C | 22. A |
| 2. D | 5. D | 8. B | 11. D | 14. D | 17. A | 20. C | 23. A |
| 3. B | 6. B | 9. A | 12. C | 15. C | 18. B | 21. D | 24. C |

Chapter 4 Introduction to Algebra

Page 49 Understanding Algebra Word Problems

- | | | | |
|------|--------------------|-------------------|--------------------|
| 1. C | 9. A | 17. $5k$ | 25. $n + 4$ |
| 2. D | 10. B | 18. $z + 12$ | 26. $t - 6$ |
| 3. A | 11. E | 19. $2b$ | 27. $\frac{18}{x}$ |
| 4. B | 12. C | 20. $x + 1$ | 28. $10 - n$ |
| 5. D | 13. $x - 3$ | 21. $\frac{t}{4}$ | 29. $3 + p$ |
| 6. C | 14. $\frac{y}{10}$ | 22. $\frac{y}{2}$ | 30. $4m$ |
| 7. E | 15. $t + 5$ | 23. $2b$ | 31. $y - 20$ |
| 8. B | 16. $n - 14$ | 24. $3y$ | 32. $5x$ |

Page 50 Setting Up Algebra Word Problems

- | | | | |
|-----------------------|----------------------------------|------------------------------|-------------------------|
| 1. $3n = 2700$ | 5. $p - 54 = 320$ | 9. $\$200 + x = \500 | 13. $6 - d = 12$ |
| 2. $5y = 15$ | 6. $\frac{1}{2}x + \$50 = \262 | 10. $\frac{1}{2}h + 17 = 35$ | 14. $4(y + 10) = 48$ |
| 3. $4(x - 2) = 20$ | 7. $\frac{100}{5} = n$ | 11. $\$2300 = 2x$ | 15. $x - 5 = 42$ |
| 4. $\frac{t}{5} = 45$ | 8. $50 - y = 82$ | 12. $\frac{w}{4} = 32$ | 16. $\frac{36}{b} = 12$ |

Page 51 Changing Algebra Word Problems to Algebraic Equations

- | | | |
|--|--|--------------------------------|
| 1. $f + f - 14 + f + 6 = 91$ | 3. $p = \$2530 - (0.40 \times \$2530)$ | 6. $y = (6 \times \$3.50) + t$ |
| 2. $r = 0.05 \times \$11 \times 40 \times w$ | 4. $f = 0.75x + (0.06 \times 0.75x)$ | 7. $m = x(\$40.50 - \$34.50)$ |
| | 5. $p = \$600 - \$100 - 8w$ | |

Page 52 Properties of Addition and Multiplication

- | | |
|---|--|
| 1. Commutative Property of Addition | 10. Identity Property of Addition |
| 2. Associative Property of Addition | 11. Inverse Property of Addition |
| 3. Distributive Property | 12. Commutative Property of Multiplication |
| 4. Associative Property of Multiplication | 13. Identity Property of Addition |
| 5. Identity Property of Multiplication | 14. Distributive Property |
| 6. Inverse Property of Multiplication | 15. Associative Property of Multiplication |
| 7. Identity Property of Multiplication | 16. Inverse Property of Addition |
| 8. Transitive Property of Equality | 17. Symmetric Property of Equality |
| 9. Reflexive Property of Equality | 18. Transitive Property of Equality |

Chapter 4 Review

Pages 53–54

- | | | |
|---|---|---------------------------|
| 1. Identity Property of Addition | 6. Inverse Property of Addition | 11. $w = \$8.00x + 0.07y$ |
| 2. Identity Property of Multiplication | 7. Transitive Property of Equality | 12. D |
| 3. Distributive Property | 8. Commutative Property of Multiplication | 13. A |
| 4. Inverse Property of Multiplication | 9. $w = \$450 + \$16.83v$ | 14. C |
| 5. Associative Property of Multiplication | 10. $x = c + 0.06c$ | 15. C |
| | | 16. $0.6b$ |
| | | 17. $x = s + 0.07s$ |

Chapter 4 Test

Page 55

1. A 2. C 3. A 4. C 5. A 6. B 7. C 8. A 9. B

Chapter 5 Solving One-Step Equations

Page 56 One-Step Algebra Problems with Addition and Subtraction

- | | | | | |
|-------------|--------------|--------------|--------------|--------------|
| 1. $n = 18$ | 6. $x = 9$ | 11. $k = 34$ | 16. $t = 44$ | 21. $r = 49$ |
| 2. $y = 43$ | 7. $w = 103$ | 12. $a = 28$ | 17. $m = 23$ | 22. $h = 39$ |
| 3. $v = 16$ | 8. $t = 46$ | 13. $d = 30$ | 18. $y = 50$ | 23. $x = 83$ |
| 4. $f = 15$ | 9. $m = 29$ | 14. $x = 41$ | 19. $f = 24$ | 24. $r = 39$ |
| 5. $x = 18$ | 10. $c = 28$ | 15. $y = 13$ | 20. $h = 30$ | 25. $t = 57$ |

Page 57 One-Step Algebra Problems with Multiplication and Division

- | | | | | |
|--------------|-------------|--------------|--------------|--------------|
| 1. $x = 7$ | 5. $x = 27$ | 9. $y = 6$ | 13. $z = 30$ | 17. $t = 9$ |
| 2. $w = 55$ | 6. $d = 11$ | 10. $y = 3$ | 14. $n = 45$ | 18. $m = 54$ |
| 3. $h = 15$ | 7. $w = 27$ | 11. $r = 28$ | 15. $z = 6$ | 19. $p = 8$ |
| 4. $x = 144$ | 8. $r = 14$ | 12. $t = 12$ | 16. $d = 14$ | 20. $a = 12$ |

Page 58 One-Step Algebra Problems with Multiplication and Division

- | | | | | | |
|----------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
| 1. $x = \frac{3}{2}$ | 6. $y = 2$ | 11. $n = \frac{9}{2}$ | 16. $t = 5$ | 21. $y = \frac{4}{9}$ | 26. $p = 8$ |
| 2. $y = \frac{5}{4}$ | 7. $x = 3$ | 12. $x = \frac{11}{5}$ | 17. $b = \frac{2}{3}$ | 22. $d = \frac{12}{7}$ | 27. $w = \frac{1}{5}$ |
| 3. $t = \frac{2}{5}$ | 8. $z = 16$ | 13. $m = 12$ | 18. $c = \frac{14}{5}$ | 23. $w = \frac{13}{2}$ | 28. $x = \frac{13}{5}$ |
| 4. $b = 12$ | 9. $x = 18$ | 14. $h = \frac{21}{5}$ | 19. $d = \frac{3}{4}$ | 24. $g = 9$ | |
| 5. $a = 8$ | 10. $p = \frac{5}{3}$ | 15. $y = \frac{8}{3}$ | 20. $z = 15$ | 25. $a = 3$ | |

Page 59 Multiplying and Dividing with Negative Numbers

- | | | | | |
|---------------|---------------|-------------------------|--------------------------|------------------------|
| 1. $z = -3$ | 9. $w = -55$ | 17. $y = 36$ | 25. $a = -\frac{36}{13}$ | 33. $z = 26$ |
| 2. $y = -100$ | 10. $y = -7$ | 18. $w = 4$ | 26. $b = 28$ | 34. $c = -9$ |
| 3. $k = -9$ | 11. $x = 36$ | 19. $v = -3$ | 27. $x = \frac{1}{4}$ | 35. $d = -\frac{3}{2}$ |
| 4. $x = -6$ | 12. $t = -7$ | 20. $z = -4$ | 28. $y = 54$ | 36. $d = \frac{3}{2}$ |
| 5. $t = -28$ | 13. $x = 2$ | 21. $x = \frac{3}{4}$ | 29. $x = 23$ | 37. $w = -\frac{3}{8}$ |
| 6. $r = 20$ | 14. $m = -36$ | 22. $y = -\frac{7}{12}$ | 30. $x = -1$ | 38. $p = -7$ |
| 7. $x = 8$ | 15. $c = 36$ | 23. $a = -44$ | 31. $y = \frac{1}{9}$ | 39. $a = 2$ |
| 8. $x = -18$ | 16. $d = -56$ | 24. $b = -\frac{1}{3}$ | 32. $d = -50$ | 40. $p = -30$ |

Page 60 Variables with A Coefficient of Negative One

- | | | | |
|--------------|--------------|--------------|---------------|
| 1. $w = -14$ | 4. $x = 25$ | 7. $p = 34$ | 10. $v = 9$ |
| 2. $a = -20$ | 5. $y = 16$ | 8. $m = -81$ | 11. $k = -13$ |
| 3. $x = 15$ | 6. $t = -62$ | 9. $w = -17$ | 12. $q = -7$ |

Chapter 5 Review

Page 60

- | | | | | |
|-----------------------|------------------------|------------------------|---------------|------------------------|
| 1. $y = -5$ | 9. $d = -\frac{4}{13}$ | 17. $x = 7$ | 25. $a = -26$ | 33. $d = 23$ |
| 2. $x = 20$ | 10. $x = -28$ | 18. $m = 10$ | 26. $f = 10$ | 34. $p = -47$ |
| 3. $d = 25$ | 11. $k = 3$ | 19. $k = -52$ | 27. $w = 33$ | 35. $k = 21$ |
| 4. $a = -48$ | 12. $y = 14$ | 20. $a = \frac{7}{18}$ | 28. $y = -4$ | 36. $y = -\frac{1}{3}$ |
| 5. $t = -2$ | 13. $h = -11$ | 21. $t = -\frac{1}{3}$ | 29. $x = -3$ | 37. $z = 18$ |
| 6. $b = -\frac{6}{7}$ | 14. $p = \frac{1}{7}$ | 22. $z = 5$ | 30. $z = 5$ | 38. $h = \frac{6}{5}$ |
| 7. $c = 30$ | 15. $b = 44$ | 23. $w = 5$ | 31. $g = 56$ | 39. $w = 20$ |
| 8. $z = -4$ | 16. $p = 38$ | 24. $n = 19$ | 32. $m = 27$ | 40. $y = -18$ |

Chapter 5 Test

Page 61

- | | | | |
|------|------|------|------|
| 1. C | 3. C | 5. B | 7. B |
| 2. A | 4. A | 6. B | 8. D |

Chapter 6 Solving Multi-Step Equations

Page 62 Two-Step Algebra Problems

- | | | | | |
|-------------|-------------|--------------|---------------|-------------|
| 1. $x = -5$ | 5. $m = 9$ | 9. $h = 7$ | 13. $r = -11$ | 17. $y = 7$ |
| 2. $y = 7$ | 6. $x = 9$ | 10. $b = -3$ | 14. $y = 8$ | 18. $p = 4$ |
| 3. $t = 7$ | 7. $x = -8$ | 11. $g = -7$ | 15. $f = 3$ | 19. $h = 4$ |
| 4. $p = -3$ | 8. $d = 6$ | 12. $k = -6$ | 16. $t = 3$ | 20. $w = 5$ |

Page 63 Two-Step Algebra Problems with Fractions

- | | | | | | |
|-------------|--------------|---------------|---------------|---------------|---------------|
| 1. $y = 9$ | 5. $b = -36$ | 9. $x = 44$ | 13. $v = 49$ | 17. $z = -28$ | 21. $p = -32$ |
| 2. $a = 14$ | 6. $z = -40$ | 10. $m = -12$ | 14. $h = 30$ | 18. $b = -30$ | 22. $t = 28$ |
| 3. $w = 45$ | 7. $x = 20$ | 11. $p = -21$ | 15. $k = 70$ | 19. $d = 15$ | 23. $a = 40$ |
| 4. $x = 36$ | 8. $c = -40$ | 12. $t = -48$ | 16. $y = -20$ | 20. $b = -36$ | 24. $a = -56$ |

Page 64 More Two-Step Algebra Problems with Fractions

- | | | | | | |
|--------------|--------------|---------------|---------------|---------------|---------------|
| 1. $x = 19$ | 5. $d = -14$ | 9. $h = 11$ | 13. $t = -32$ | 17. $t = 27$ | 21. $y = -2$ |
| 2. $z = 23$ | 6. $w = 42$ | 10. $k = 37$ | 14. $b = -15$ | 18. $x = -20$ | 22. $z = -22$ |
| 3. $b = -16$ | 7. $x = 11$ | 11. $a = -27$ | 15. $f = 33$ | 19. $g = 19$ | 23. $w = -17$ |
| 4. $y = 30$ | 8. $c = -5$ | 12. $x = 62$ | 16. $w = -40$ | 20. $k = -31$ | 24. $h = 15$ |

Page 65 Combining Like Terms

- | | | |
|---------------|-----------------|---------------|
| 1. $19x$ | 8. $-12t + 30$ | 15. $d - 3$ |
| 2. $3y + 8$ | 9. $-3x + 6$ | 16. $3h - 7$ |
| 3. $-2x + 13$ | 10. $11b + 12$ | 17. $8x + 7$ |
| 4. $10a - 16$ | 11. $3h - 3$ | 18. $4z + 5$ |
| 5. $12w + 3$ | 12. $-10k + 10$ | 19. $2y + 12$ |
| 6. $-2x$ | 13. $15a - 5$ | 20. $12p - 4$ |
| 7. $10w - 15$ | 14. $9c - 5$ | 21. $10m + 3$ |

Page 65 Solving Equations with Like Terms

- | | | | | | |
|------------|-------------|------------|-------------|--------------|--------------|
| 1. $w = 2$ | 3. $y = -5$ | 5. $t = 8$ | 7. $c = -2$ | 9. $x = 3$ | 11. $y = -7$ |
| 2. $x = 2$ | 4. $a = 1$ | 6. $d = 2$ | 8. $m = 2$ | 10. $p = -1$ | 12. $a = -2$ |

Page 66 Solving Equations with Like Terms

- | | | | | | |
|-------------|--------------|--------------|--------------|--------------|---------------|
| 1. $a = 4$ | 6. $b = -4$ | 11. $y = 3$ | 16. $p = 6$ | 21. $x = 3$ | 26. $p = -6$ |
| 2. $d = 15$ | 7. $m = -4$ | 12. $w = 1$ | 17. $z = 10$ | 22. $h = 11$ | 27. $d = -15$ |
| 3. $x = 1$ | 8. $x = -3$ | 13. $b = 3$ | 18. $y = 6$ | 23. $t = -6$ | 28. $w = -17$ |
| 4. $y = 3$ | 9. $p = 7$ | 14. $k = 5$ | 19. $w = -5$ | 24. $y = -5$ | 29. $y = -2$ |
| 5. $w = 2$ | 10. $p = -5$ | 15. $m = -3$ | 20. $x = -5$ | 25. $x = 2$ | 30. $m = 4$ |

Page 67 Removing Parentheses

- | | | | | |
|---------------|----------------|-----------------|-----------------|-----------------|
| 1. $7n + 42$ | 7. $-8x + 12$ | 13. $-36t + 12$ | 19. $-16c - 12$ | 25. $-20w - 40$ |
| 2. $16g - 40$ | 8. $28 + 42p$ | 14. $12y + 27$ | 20. $5w + 40$ | 26. $-27 + 21p$ |
| 3. $55z - 22$ | 9. $-20w - 40$ | 15. $8b + 24$ | 21. $-12x + 6$ | 27. $9k + 27$ |
| 4. $-6y - 24$ | 10. $66x + 12$ | 16. $-7x - 14$ | 22. $2z - 4$ | 28. $-7b + 9$ |
| 5. $-9k + 15$ | 11. $90 - 10y$ | 17. $-20 + 5y$ | 23. $-28p - 28$ | 29. $30t + 12$ |
| 6. $4d - 32$ | 12. $9c - 81$ | 18. $-8b + 8$ | 24. $-9t + 54$ | 30. $7v - 28$ |

Pages 68–69 Multi-Step Algebra Problems

- | | | | | | |
|--------------|--------------|--------------|--------------|--------------|--------------|
| 1. $y = -6$ | 7. $b = -5$ | 13. $x = -4$ | 19. $x = 3$ | 25. $a = -2$ | 31. $x = -2$ |
| 2. $a = 8$ | 8. $y = -2$ | 14. $x = 3$ | 20. $c = 1$ | 26. $m = -4$ | 32. $x = 5$ |
| 3. $x = 9$ | 9. $x = 11$ | 15. $a = -8$ | 21. $a = -7$ | 27. $b = 12$ | 33. $x = 1$ |
| 4. $y = -3$ | 10. $n = 27$ | 16. $x = 19$ | 22. $x = -1$ | 28. $b = 12$ | 34. $c = -3$ |
| 5. $x = 5$ | 11. $x = -3$ | 17. $b = 4$ | 23. $y = -2$ | 29. $x = -3$ | 35. $y = -9$ |
| 6. $a = -14$ | 12. $a = -2$ | 18. $x = -1$ | 24. $y = 2$ | 30. $x = -7$ | 36. $x = 8$ |

Chapter 6 Review

Page 70

- | | | | | |
|--------------|-----------------------|-----------------------|-----------------|-----------------|
| 1. $a = 9$ | 7. $d = 4$ | 13. $b = \frac{1}{2}$ | 19. $x = 4$ | 25. $-24a + 16$ |
| 2. $x = -72$ | 8. $c = -1$ | 14. $a = -7$ | 20. $x = -3$ | 26. $-10c + 6$ |
| 3. $w = 5$ | 9. $w = -10$ | 15. $b = -3$ | 21. $x = 4$ | 27. $-35y + 5$ |
| 4. $y = 50$ | 10. $x = \frac{7}{2}$ | 16. $x = -2$ | 22. $-12x + 21$ | 28. $-a - 1$ |
| 5. $c = 18$ | 11. $n = -22$ | 17. $x = 5$ | 23. $22y + 55$ | 29. $-2z + 6$ |
| 6. $b = -45$ | 12. $x = -1$ | 18. $x = 1$ | 24. $-54b + 48$ | 30. $-9 - 16x$ |

Chapter 6 Test

Page 71

1. D 2. B 3. D 4. C 5. B 6. A 7. B 8. D 9. B 10. B

Chapter 7 Ratios and Proportions

Page 72 Ratio Problems

1. $\frac{14}{31}$ 2. $\frac{7}{2}$ 3. $\frac{25}{124}$ 4. $\frac{1}{26}$ 5. $\frac{4}{11}$ 6. $\frac{\$3.00}{5}$ 7. $\frac{23}{45}$ 8. $\frac{4}{3}$

Page 73 Solving Proportions

- | | | | | | |
|-------|-------|-------|--------|--------|-------|
| 1. 15 | 4. 21 | 7. 18 | 10. 3 | 13. 3 | 16. 4 |
| 2. 15 | 5. 30 | 8. 4 | 11. 12 | 14. 1 | 17. 6 |
| 3. 9 | 6. 9 | 9. 30 | 12. 8 | 15. 49 | 18. 2 |

Page 74 Ratio and Proportion Word Problems

- | | | |
|----------|--------------|-----------|
| 1. 7 hr | 4. 5 | 7. 20 |
| 2. 15 ft | 5. 500 sq ft | 8. \$4.20 |
| 3. 320 | 6. 250 min | 9. 1, 500 |

Page 77 Direct and Indirect Variation

- | | | | |
|-------|-------|--------------|--------------|
| 1. 10 | 5. 18 | 9. 10 | 13. \$6.95 |
| 2. 8 | 6. 3 | 10. 4 | 14. 26.4 mph |
| 3. 21 | 7. 9 | 11. 20 min | 15. 7.5 min |
| 4. 12 | 8. 18 | 12. 3 movies | 16. 63 min |

Chapter 7 Review

Page 78

- | | | | | | | |
|-------|-------|-------------------|-------------------|--------|-------------------|-------------|
| 1. 16 | 3. 2 | 5. $\frac{9}{20}$ | 7. $\frac{4}{47}$ | 9. 3.6 | 11. $\frac{5}{6}$ | 13. 75 |
| 2. 4 | 4. 18 | 6. 162 | 8. 7.5 | 10. 8 | 12. 84 | 14. \$12.50 |

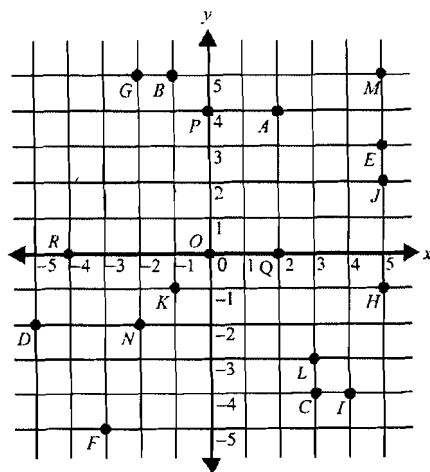
Chapter 7 Test

Page 79

1. A 2. C 3. D 4. B 5. D 6. D 7. B 8. A

Chapter 8 Relations and Functions

Page 81 Cartesian Coordinates



Page 81 Identifying Ordered Pairs

- | | | |
|---------------------|----------------------|----------------------|
| 1. $(-6, 2)$, II | 7. $(4, -4)$, IV | 13. $(5, -3)$, IV |
| 2. $(1, 2)$, I | 8. $(3, 1)$, I | 14. $(-4, -5)$, III |
| 3. $(-2, 6)$, II | 9. $(2, 6)$, I | 15. $(4, 5)$, I |
| 4. $(-3, -2)$, III | 10. $(-2, 3)$, II | 16. $(-5, 4)$, II |
| 5. $(-3, 1)$, II | 11. $(-1, -7)$, III | 17. $(-5, -3)$, III |
| 6. $(2, -2)$, IV | 12. $(6, -6)$, IV | 18. $(-6, -1)$, III |

Page 82 More Identifying Ordered Pairs

- | | | | | | |
|--------------|--------------|-------------|--------------|--------------|---------------|
| 1. $(-6, 0)$ | 3. $(2, 0)$ | 5. $(0, 5)$ | 7. $(0, -4)$ | 9. $(0, 0)$ | 11. $(0, -6)$ |
| 2. $(0, 2)$ | 4. $(0, -2)$ | 6. $(5, 0)$ | 8. $(-3, 0)$ | 10. $(0, 6)$ | 12. $(-1, 0)$ |

Page 83 Relations

- | | |
|--|---|
| 1. Domain: $\{2, 9, 3, 6\}$
Range: $\{5, 12, 8, 7\}$ | 7. Domain: $\{-7, -3, -4, -6, -8\}$
Range: $\{-4, 16, 17, -8, 12\}$ |
| 2. Domain: $\{12, 3, 7, 26\}$
Range: $\{4, 12, 19\}$ | 8. Domain: $\{-1, 3, -7, -2, -6\}$
Range: $\{-2, 6, 14, 8, 2\}$ |
| 3. Domain: $\{4, 7, 16, 5\}$
Range: $\{3, 14, 34, 11\}$ | 9. Domain: $\{0, -8, 3, -8, 7\}$
Range: $\{9, 5, 12, -3, 18\}$ |
| 4. Domain: $\{2, 33, 98, 43, 67\}$
Range: $\{45, 43, 9, 61, 54\}$ | 10. Domain: $\{58, 44, 74, 6, 63\}$
Range: $\{14, 97, 32, 18, 44\}$ |
| 5. Domain: $\{78, 29, 84, 16, 98\}$
Range: $\{14, 67, 49, 18, 46\}$ | 11. Domain: $\{-7, -8, -3, -7, -2\}$
Range: $\{0, 10, 11, -32, 57\}$ |
| 6. Domain: $\{-8, 23, -4, 16, -3\}$
Range: $\{16, -7, -9, -8, 6\}$ | 12. Domain: $\{18, 22, 94, 11, 91\}$
Range: $\{34, 64, 36, 18, 45\}$ |

Page 84 Relations

- | | | |
|----------------------------|------------------------------|--------------------------|
| 1. $\{5, 10, 15, 20\}$ | 5. $\{1, -1, -5, -7\}$ | 9. $\{2, 4, 6, 8\}$ |
| 2. $\{3, 2, 1, 0, 1\}$ | 6. $\{-22, -12, -2, 8, 18\}$ | 10. $\{-1, 2, 8, 11\}$ |
| 3. $\{2, 5, 11, 14\}$ | 7. $\{7, 4, 1, 4, 7\}$ | 11. $\{2, 6, 14, 18\}$ |
| 4. $\{-2, -1, 0, -1, -2\}$ | 8. $\{1, 2, 3, 4\}$ | 12. $\{3, 1, -1, 1, 3\}$ |

Pages 85–86 Determining Domain and Range from Graphs

- | | | | |
|---|---|---|---|
| 1. $-4 \leq x \leq 4$
$-5 \leq y \leq 0$ | 3. $-3 \leq x \leq 3$
$-4 \leq y \leq 4$ | 5. $-1 \leq x \leq 1$
$-1 \leq y \leq 2.5$ | 7. $-2 \leq x \leq 2$
$-4 \leq y \leq 4$ |
| 2. $-2 \leq x \leq 2$
$0 \leq y \leq 4$ | 4. $-3 \leq x \leq 4$
$-1 \leq y \leq 5$ | 6. $-2 \leq x \leq 4$
$1 \leq y \leq 4$ | 8. $-4 \leq x \leq 4$
$-2 \leq y \leq 2$ |

Page 87 Functions

- | | | | | |
|-------|-------|--------|--------|--------|
| 1. F | 5. NF | 9. F | 13. F | 17. NF |
| 2. F | 6. F | 10. F | 14. F | 18. NF |
| 3. NF | 7. F | 11. NF | 15. NF | 19. NF |
| 4. F | 8. NF | 12. NF | 16. F | 20. NF |

Page 88 Function Notation

- | | | | | |
|--------|-------|-------|-------|---------|
| 1. 29 | 3. 4 | 5. 23 | 7. 31 | 9. -3 |
| 2. -10 | 4. 16 | 6. 4 | 8. 60 | 10. -11 |

Pages 90–91 Recognizing Functions

- | | | | |
|-------------------|-------------------|-------------------|--------------------|
| 1. Function | 4. Function | 7. Function | 10. Function |
| 2. Not a Function | 5. Not a Function | 8. Not a Function | 11. Not a Function |
| 3. Function | 6. Function | 9. Not a Function | 12. Not a Function |

Page 92 Function Tables

1. rule: $2(n - 5)$

n	$f(n)$
0	-10
1	-8
2	-6
3	-4

4. rule: $2x(x - 1)$

x	$f(x)$
1	0
2	4
3	12
4	24

7. rule: $n(n + 2)$

n	$f(n)$
1	3
2	8
3	15
4	24

2. rule: $3x(x - 4)$

x	$f(x)$
0	0
1	-9
2	-12
3	-9

5. rule: $\frac{1}{n + 3}$

n	$f(n)$
1	$\frac{1}{4}$
2	$\frac{1}{5}$
3	$\frac{1}{6}$
4	$\frac{1}{7}$

8. rule: $2x - 3$

x	$f(x)$
1	-1
2	1
3	3
4	5

3. rule: $\frac{2 - n}{2}$

n	$f(n)$
0	1
2	0
4	-1
6	-2
8	-3

6. rule: $4x - x$

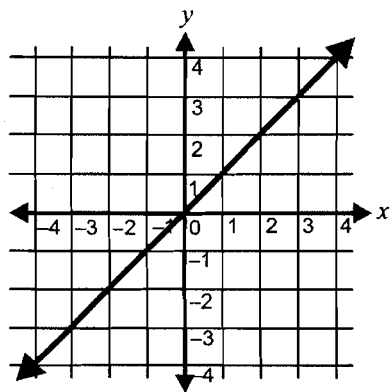
x	$f(x)$
-2	-6
-1	-3
0	0
1	3
2	6

9. rule: $3 - 2n$

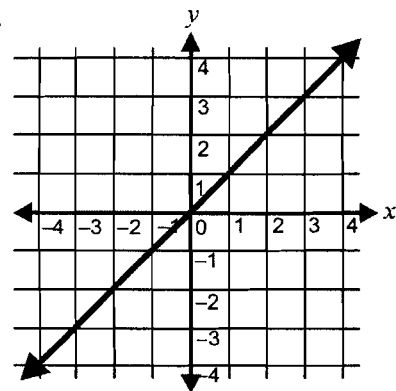
n	$f(n)$
-2	7
-1	5
0	3
1	1
2	-1

Page 93 Graphing Simple Linear Equations

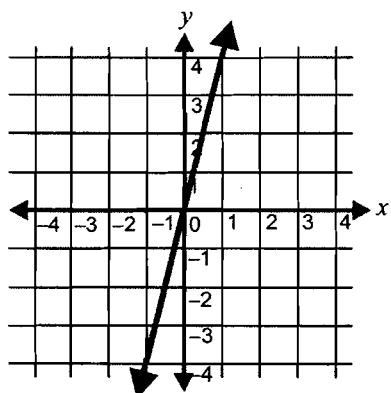
1.



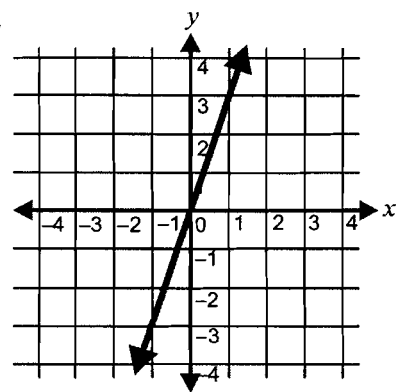
4.



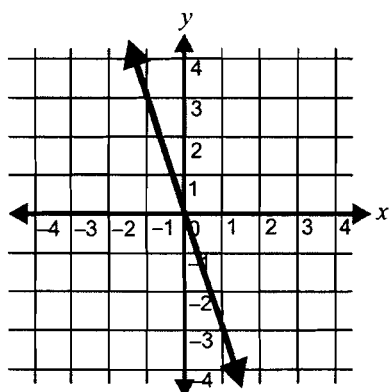
2.



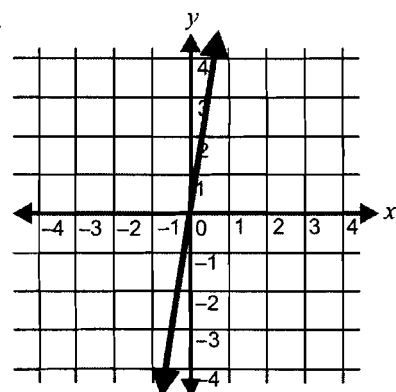
5.



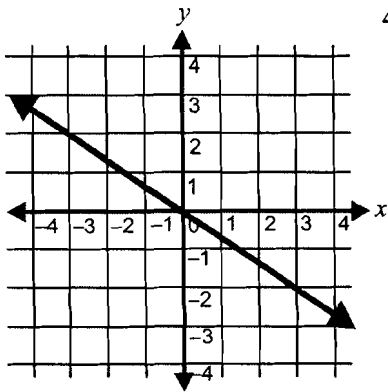
3.



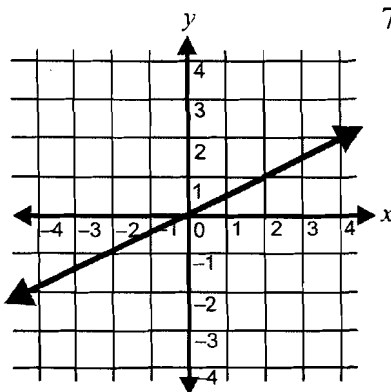
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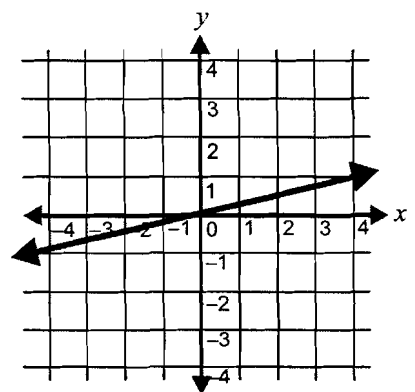
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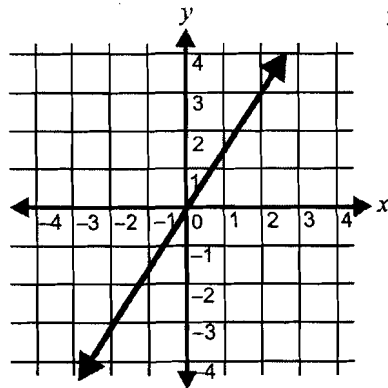
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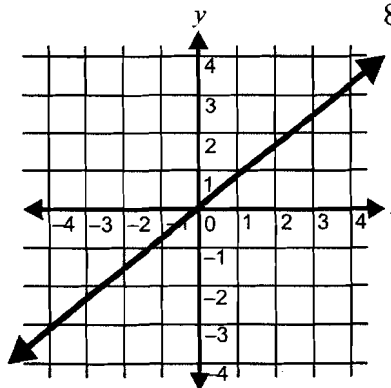
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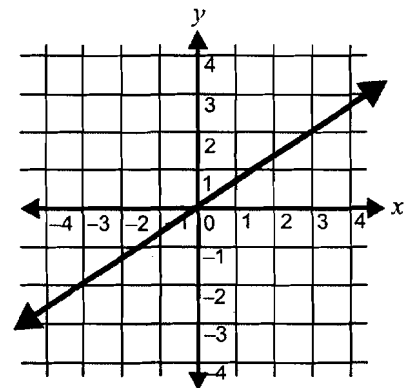
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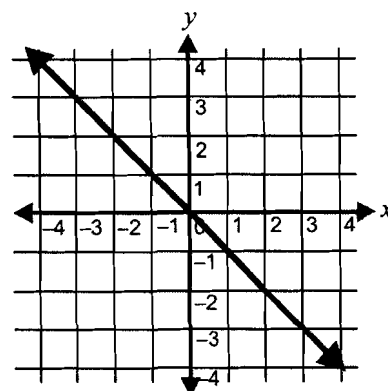
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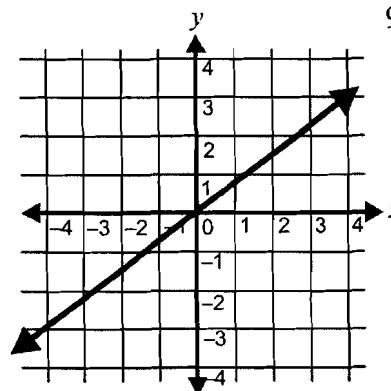
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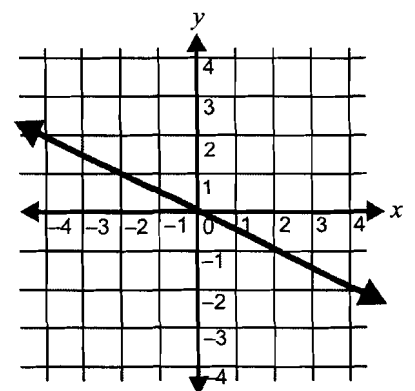
3.



6.



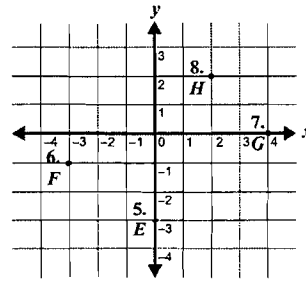
9.



Chapter 8 Review

Pages 95–96

1. $A = (3, -3)$, IV
2. $B = (-2, -2)$, III
3. $C = (4, 3)$, I
4. $D = (-1, 3)$, II
5. see graph to the right
6. see graph to the right
7. see graph to the right
8. see graph to the right
9. I
10. III



11. $\{-1, 2, 4, 6\}$
12. $\{-2, -4, 6, -8\}$
13. $\{0, 5, 10, 15, 20\}$
14. $\{-6, -3, 3, 6, 9\}$
15. $\{26, 18, 10, 2, -6\}$
16. F
17. F
18. NF
19. NF
20. F

21. Rule: $\frac{(4 - 2n)^2}{2}$

n	$f(n)$
0	2
1	1
2	0
3	-1
4	-2

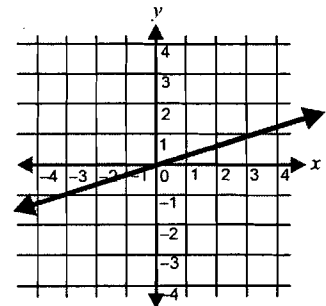
22. Rule: $2n(n + 1)$

n	$f(n)$
0	0
1	4
2	12
3	24
4	40

23. Rule: $6n - 3$

n	$f(n)$
2	9
3	15
4	21
5	27
6	33

24.



Chapter 8 Test

Pages 97–98

1. D
2. B
3. A
4. B
5. C
6. B
7. C
8. D
9. B
10. D
11. D
12. B

Chapter 9 Statistics

Page 99 Range

- | | | | | | | |
|-------|-------|--------|--------|--------|--------|--------|
| 1. 39 | 5. 44 | 9. 60 | 13. 47 | 17. 84 | 21. 51 | 25. 75 |
| 2. 49 | 6. 57 | 10. 63 | 14. 82 | 18. 54 | 22. 72 | 26. 53 |
| 3. 69 | 7. 67 | 11. 52 | 15. 23 | 19. 62 | 23. 54 | 27. 64 |
| 4. 53 | 8. 46 | 12. 91 | 16. 44 | 20. 35 | 24. 85 | 28. 92 |

Page 100 Mean

- | | | | |
|-----------|------------|----------|----------|
| 1. 505.5 | 5. \$82.03 | 9. 5.3 | 13. 41.6 |
| 2. \$7.35 | 6. 66.8 | 10. 86 | 14. 52 |
| 3. 20 | 7. 22.2 | 11. 13.9 | 15. \$85 |
| 4. 8.6 | 8. 54.2 | 12. 4.5 | 16. 9 |

Page 101 Finding Data Missing From the Mean

- | | | |
|---------------|--------------|--------------|
| 1. 97% | 4. 8 pounds | 7. 15 ounces |
| 2. \$92.00 | 5. 23 pounds | 8. 4 ounces |
| 3. 85 cookies | 6. 96 pounds | 9. 10 points |

Page 102 Median

- | | | | | | | |
|-------|--------|--------|--------|----------|----------|----------|
| 1. 40 | 5. 87 | 9. 8 | 13. 52 | 17. 11 | 21. 25 | 25. 22 |
| 2. 5 | 6. 33 | 10. 15 | 14. 20 | 18. 38 | 22. 5 | 26. 61 |
| 3. 60 | 7. 401 | 11. 9 | 15. 14 | 19. 10.5 | 23. 14 | 27. 46.5 |
| 4. 19 | 8. 21 | 12. 55 | 16. 32 | 20. 51 | 24. 22.5 | 28. 25 |

Page 103 Mode

- | | | | | |
|-------|-------|--------|--------|--------|
| 1. 88 | 6. 4 | 11. 7 | 16. 48 | 21. 8 |
| 2. 44 | 7. 12 | 12. 22 | 17. 22 | 22. 8 |
| 3. 21 | 8. 56 | 13. 95 | 18. 62 | 23. 51 |
| 4. 67 | 9. 16 | 14. 2 | 19. 22 | 24. 74 |
| 5. 22 | 10. 4 | 15. 89 | 20. 33 | 25. 2 |

Page 104 Applying Measure of Central Tendency

1. The mean sale price is \$189,700. The median sale price is \$110,500. The mode sale price is \$525,000.

The median is the most representative measure because the two highest prices inflate the mean, making it less representative.

- | | | | | |
|-----------|-------|--------|------|-----------------|
| 2. (A) | Mean | Median | Mode | (B) Mean: 4.752 |
| 1st shift | 4.758 | 4.76 | 4.77 | Median: 4.76 |
| 2nd shift | 4.736 | 4.73 | 4.72 | Mode: 4.76 |
| 3rd shift | 4.762 | 4.76 | 4.76 | |

(C) The mean is the most accurate measure of central tendency in this case. Because all of the measurement values are very close to one another, the measure which best detects the smallest variations in the values is the mean.

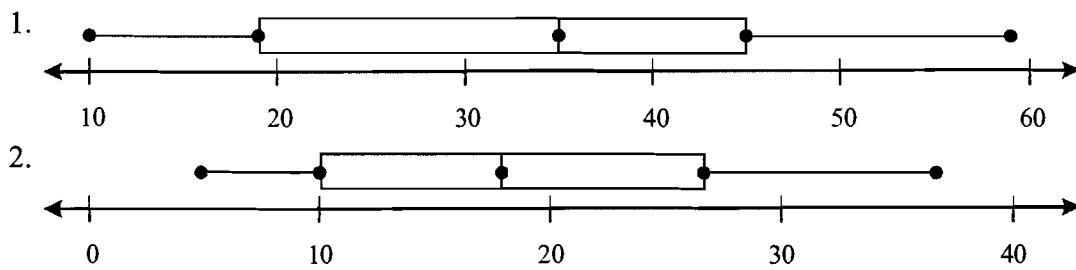
(D)

	Range	The range is not an effective tool for drawing a conclusion in this case
1st shift	0.03	because the range only identifies the difference between the highest
2nd shift	0.04	and lowest values in the sample, but gives no indication as to how
3rd shift	0.01	close the samples are to the target weight.

Page 105 Quartiles and Extremes

	lower extreme	lower quartile	median	upper quartile	upper extreme
1.	0	1	2	3	5
2.	15	16	20	22	23
3.	62	76	81	89	94
4.	74	74	76	77	78
5.	3	4	6	7	8
6.	190	191	192	195	196
7.	6	8	10	12	15
8.	21	23	26	30	35

Page 106 Box-and-Whisker Plots



Page 108 Scatter Plots

- 1. no relationship
- 2. negative
- 3. no relationship
- 4. positive
- 5. positive
- 6. negative

Page 110 Misleading Statistics

- 1. Graph B is misleading because the y -axis does not begin at 0.
- 2. 5
- 3. 2
- 4. 2
- 5. mean
- 6. median
- 7. Yes, the mean is affected by an outlier if one teenager purchases 58 games. The outlier inflates the average number of games purchased per teenager.
- 8. Graph A is misleading because it does not start at 0.

Chapter 9 Review

Page 111

Data Set Number	Mean	Median	Mode	Range
①	21	20	20	6
②	18	13		42
③	\$275.00	\$280.00	\$280.00	\$198.00

- 4. 115 points
- 5. \$400
- 6. 14 pizzas
- 7. $13\frac{1}{3}$ ounces
- 8. 10 points
- 6. 93 inches
- 10. $322\frac{1}{3}^{\circ}\text{F}$
- 11. 349°F
- 12. 104°F because it is an outlier

Chapter 9 Test

Pages 112–113

- 1. A
- 2. D
- 3. C
- 4. B
- 5. A
- 6. D
- 7. D
- 8. C
- 9. C
- 10. C
- 11. C
- 12. D
- 13. A
- 14. A

Chapter 10 Data Interpretation

Page 115 Tally Charts and Frequency Tables

1.

Question Number	Tally	Frequency
1		5
2		8
3		11
4		12
5		7
6		4
7		5
8		7
9		2
10		3

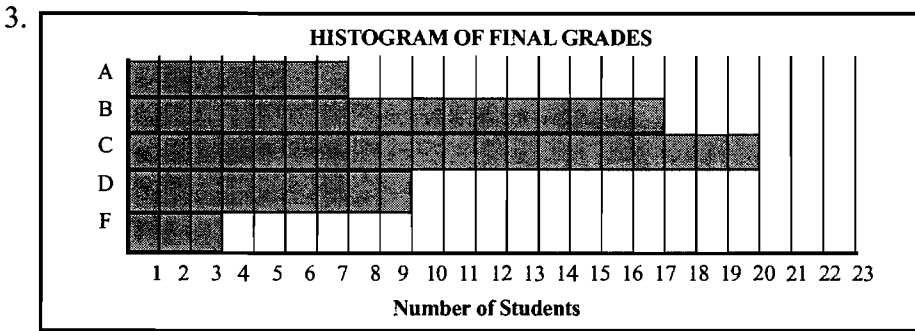
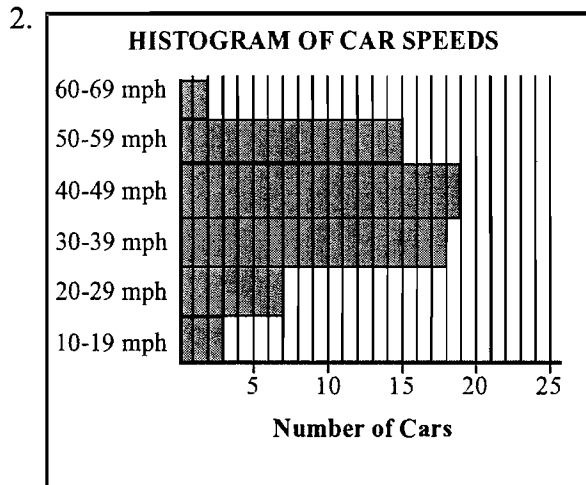
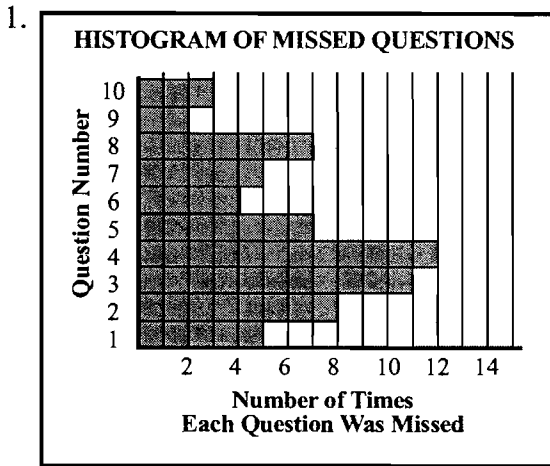
2.

Speed	Tally	Frequency
0-9		0
10-19		3
20-29		7
30-39		18
40-49		19
50-59		15
60-69		2

3.

Grade	Tally	Frequency
A		7
B		17
C		20
D		9
F		3

Page 116 Histograms



Page 118 Reading Tables

1. \$19 2. \$37 3. \$10 4. \$29 5. \$34 6. \$25

Page 120 Bar Graphs

1. 155 6. 30
 2. 28 7. 7
 3. 285 8. C
 4. 75 9. 96
 5. 103 10. 52

Page 122 Line Graphs

1. False 3. True 5. False 7. True 9. False
 2. True 4. True 6. False 8. False 10. False

Page 124 Circle Graphs

- 1. \$16 3. \$40 5. 300 7. 280 9. 150
- 2. \$20 4. \$4 6. 150 8. 50 10. 70

Page 125 Pictographs

- 1. 17,500 officers 4. 262,500 officers 6. 47,500 officers
- 2. Coast Guard 5. 82,500 officers 7. 95,000 officers
- 3. Army officers

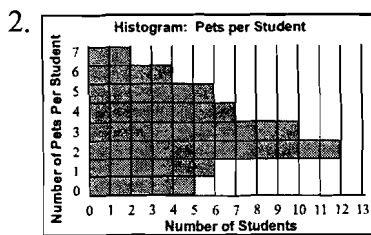
Page 126 Pictographs

- 1. Europe 4. Middle East, Africa 7. United States and Canada, Asia, and Australia and Pacific Islands
- 2. 3 5. 7 million
- 3. 4 6. 17.25 million

Chapter 10 Review
Pages 128–129

1.

Number of Pets	Frequency
7	2
6	4
5	6
4	7
3	10
2	12
1	6
0	5



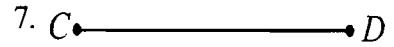
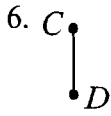
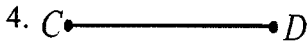
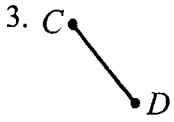
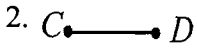
- 3. 33
- 4. 2
- 5. 40
- 6. 11.2 million metric tons
- 7. 37.6 million metric tons
- 8. 14.8 million metric tons
- 9. 1.8 billion
- 10. 144 million
- 11. Africa
- 12. 80 million metric tons
- 13. 1983
- 14. 20 million metric tons

Chapter 10 Test
Pages 130–132

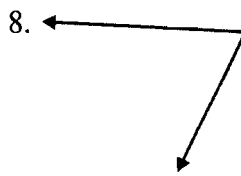
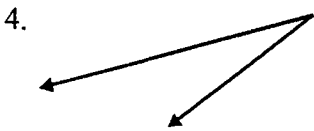
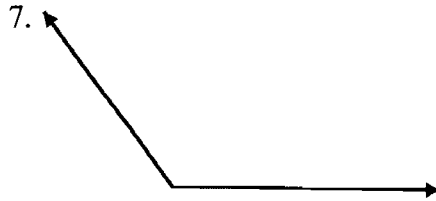
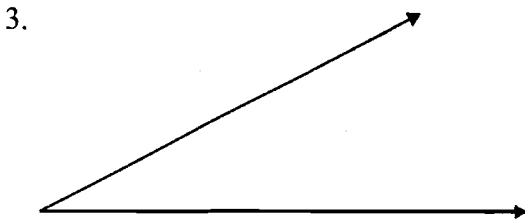
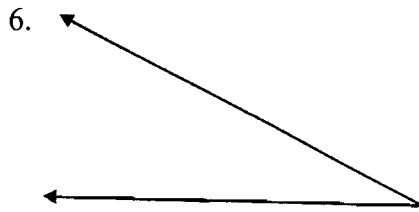
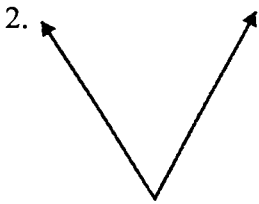
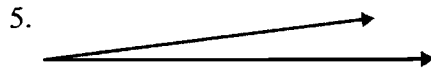
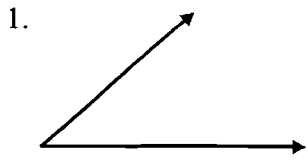
- 1. C 2. B 3. C 4. C 5. A 6. C 7. D 8. C 9. B 10. B

Chapter 11 Geometry

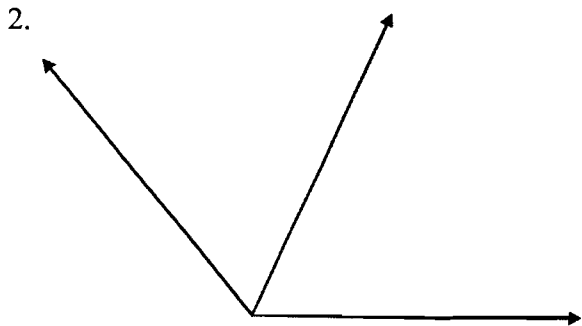
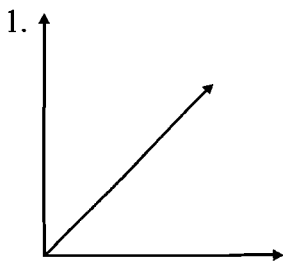
Page 134 Copying a Line Segment



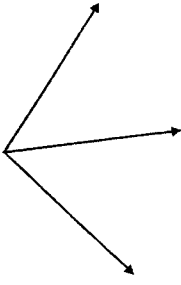
Page 136 Copying an Angle



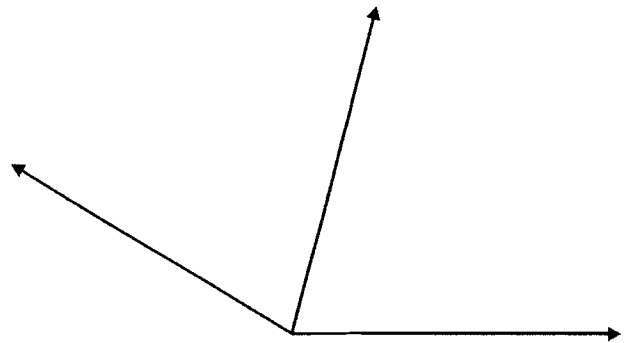
Page 138 Drawing a Bisector of an Angle



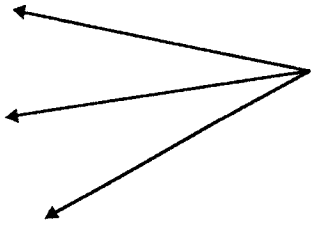
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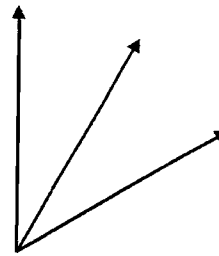
6.



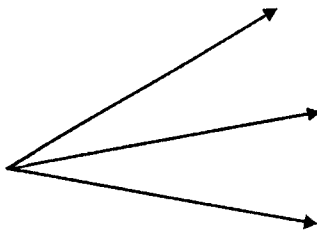
4.



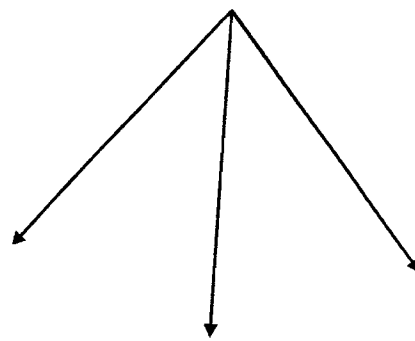
7.



5.

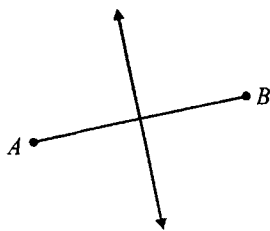


8.

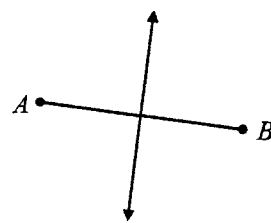


Page 139 Drawing the Perpendicular Bisector of a Line Segment

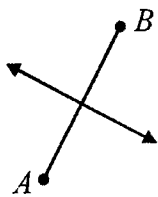
1.



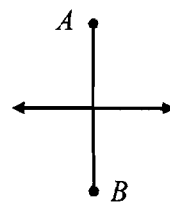
3.



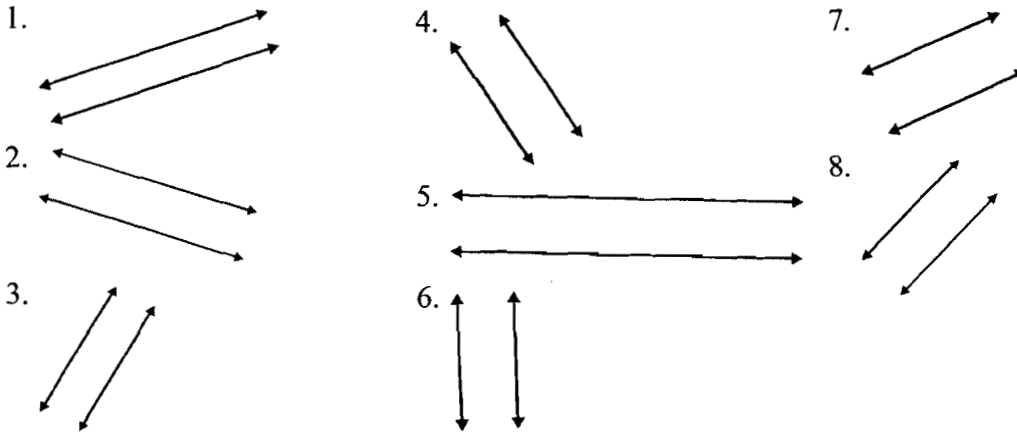
2.



4.



Page 141 Drawing Parallel Lines



Page 144 Congruent Figures

1. congruent, all corresponding angles and sides are congruent
2. not congruent, corresponding angles are not congruent
3. congruent, all corresponding angles and sides are congruent
4. not congruent, corresponding angles are not congruent
5. not congruent, corresponding sides are not equal
6. not congruent, corresponding sides are not congruent

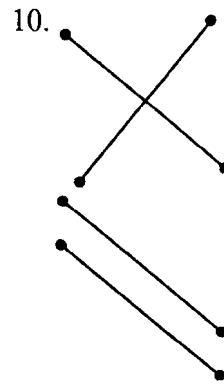
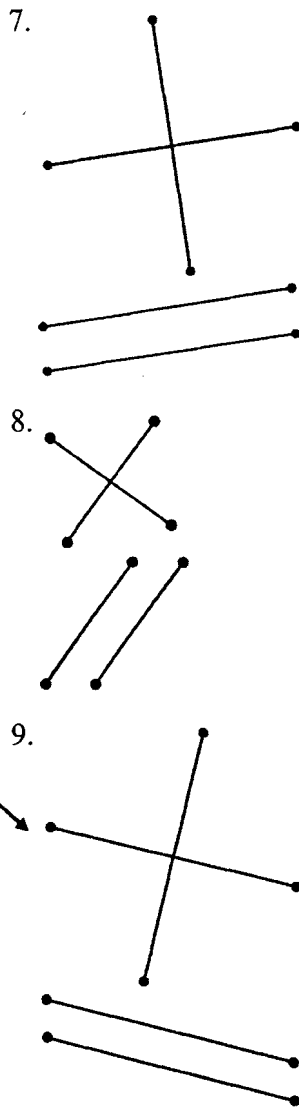
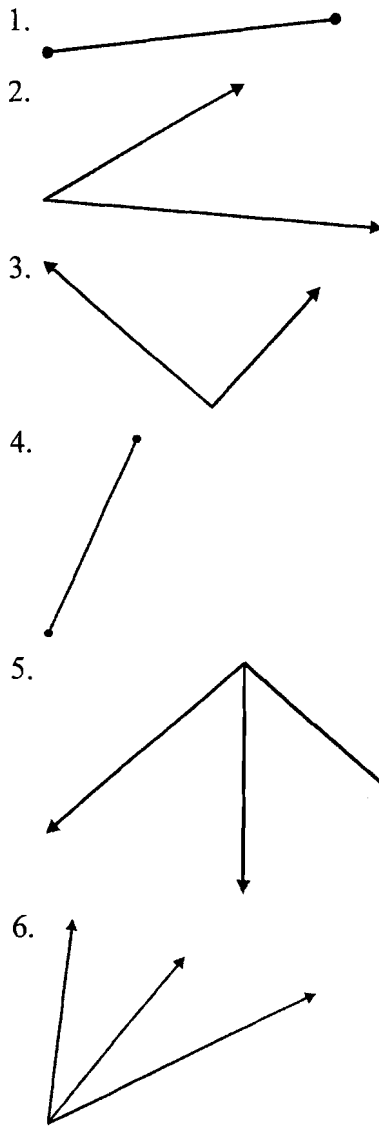
Page 145 Similar and Congruent

- | | |
|------|-------|
| 1. N | 8. C |
| 2. S | 9. C |
| 3. C | 10. N |
| 4. C | 11. S |
| 5. N | 12. N |
| 6. C | 13. C |
| 7. S | 14. N |

Page 147 Similar Triangles

- | | | | |
|-------|------|------|-------|
| 1. 10 | 3. 9 | 5. 4 | 7. 12 |
| 2. 24 | 4. 8 | 6. 9 | 8. 12 |

Chapter 11 Review
Pages 154–155



- 11. cone, cylinder, sphere
- 12. rectangular prism, cube
- 13. pyramid, cone
- 14. circle
- 15. cone
- 16. cylinder, rectangular prism, pyramid
- 17. 4 cm
- 18. 5
- 19. 9

Chapter 11 Test
Page 156

- 1. B
- 2. A
- 3. D
- 4. A
- 5. D
- 6. D
- 7. C
- 8. A

Chapter 12 Transformations and Symmetry

Page 158 Drawing Geometric Figures on a Cartesian Coordinate Plane

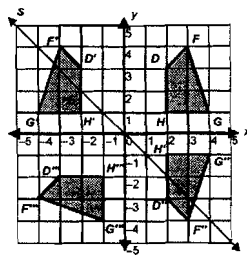
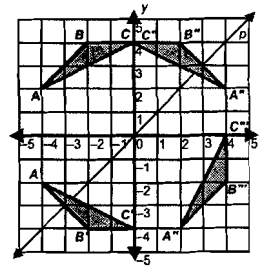
- | | | |
|---|--|--|
| 1. $A = (-1, -1)$
$B = (-2, 4)$
$C = (2, 2)$
$D = (2, 0)$ | 3. $I = (3, -5)$
$J = (5, -1)$
$K = (6, -7)$ | 5. $P = (-5, -3)$
$Q = (0, 0)$
$R = (0, -3)$ |
| 2. $E = (-6, 2)$
$F = (-3, 2)$
$G = (-3, -4)$
$H = (-6, -4)$ | 4. $L = (-6, 6)$
$M = (-1, 6)$
$N = (2, 3)$
$O = (-3, 3)$ | 6. $S = (1, -7)$
$T = (0, -5)$
$V = (2, -4)$
$X = (4, -5)$
$Y = (3, -7)$ |

Page 159 More Drawing Geometric Figures on a Cartesian Coordinate Plane

- | | | | |
|-----------------------|-------------------|-------------|--------------|
| 1. square | 3. parallelogram | 5. pentagon | 7. triangle |
| 2. isosceles triangle | 4. right triangle | 6. square | 8. rectangle |

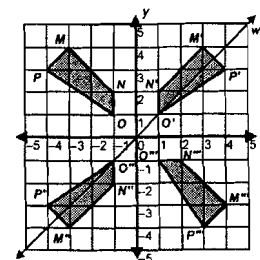
Pages 161–162 Reflections

- $A' = (-4, -2)$ $B' = (-2, -4)$ $C' = (0, -4)$
- $A'' = (4, 2)$ $B'' = (2, 4)$ $C'' = (0, 4)$
- $A''' = (2, -4)$ $B''' = (4, -2)$ $C''' = (4, 0)$

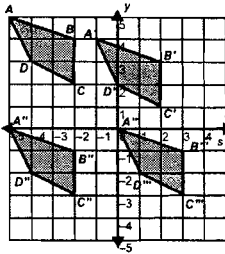


- $D' = (-2, 3)$ $F' = (-3, 4)$ $G' = (-4, 1)$ $H' = (-2, 1)$
- $D'' = (2, -3)$ $F'' = (3, -4)$ $G'' = (4, -1)$ $H'' = (2, -1)$
- $D''' = (-3, -2)$ $F''' = (-4, -3)$ $G''' = (-1, -4)$ $H''' = (-1, -2)$

- $M' = (3, 4)$ $N' = (1, 2)$ $O' = (1, 1)$ $P' = (4, 3)$
- $M'' = (-3, -4)$ $N'' = (-1, -2)$ $O'' = (-1, -1)$ $P'' = (-4, -3)$
- $M''' = (4, -3)$ $N''' = (2, -1)$ $O''' = (1, -1)$ $P''' = (3, -4)$



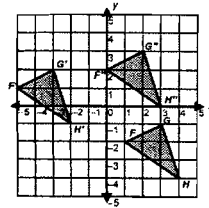
Page 164 Translations



- $A' = (-1, 4)$ $B' = (2, 3)$ $C' = (2, 1)$ $D' = (0, 2)$
- $A'' = (-5, 0)$ $B'' = (-2, -1)$ $C'' = (-2, -3)$ $D'' = (-4, -2)$
- $A''' = (0, 0)$ $B''' = (3, -1)$ $C''' = (3, -3)$ $D''' = (1, -2)$

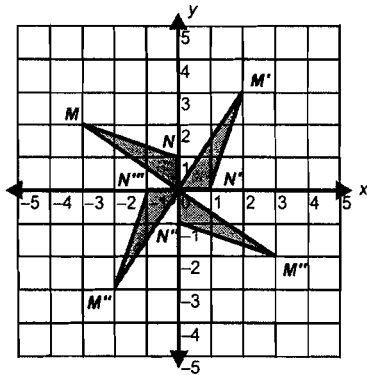
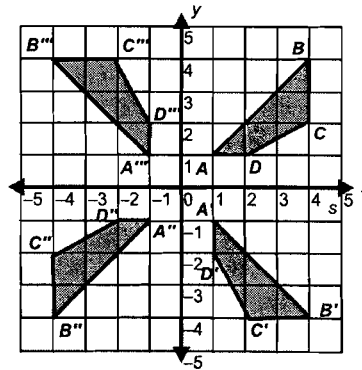
4. $F' = (-5, 1)$ $G' = (-3, 2)$ $H' = (-2, -1)$

5. $F'' = (0, 2)$ $G'' = (2, 3)$ $H'' = (3, 0)$



Pages 165–166 Rotations

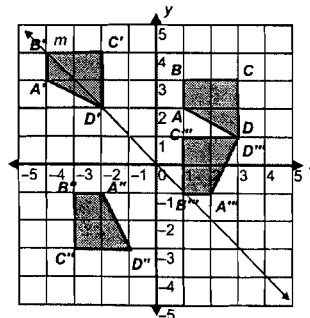
- $A' = (1, -1)$ $C' = (2, -4)$
 $B' = (4, -4)$ $D' = (1, -2)$
- $A'' = (-1, -1)$ $C'' = (-4, -2)$
 $B'' = (-4, -4)$ $D'' = (-2, -1)$
- $A''' = (-1, 1)$ $C''' = (-2, 4)$
 $B''' = (-4, 4)$ $D''' = (-1, 2)$



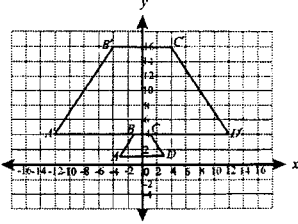
- $M' = (2, 3)$ $N' = (1, 0)$
- $M'' = (3, -2)$ $N'' = (0, -1)$
- $M''' = (-2, -3)$ $N''' = (-1, 0)$

Page 166 Transformation Practice

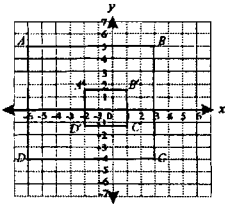
- $A' = (-4, 3)$ $C' = (-2, 4)$
 $B' = (-4, 4)$ $D' = (-2, 2)$
- $A'' = (-2, -1)$ $C'' = (-3, -3)$
 $B'' = (-3, -1)$ $D'' = (-1, -3)$
- $A''' = (2, -1)$ $C''' = (1, 1)$
 $B''' = (1, -1)$ $D''' = (3, 1)$



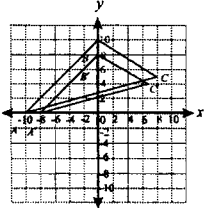
1. $A' = (-12, 4)$ $B' = (-4, 16)$
 $C' = (4, 16)$ $D' = (12, 4)$



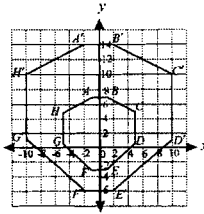
2. $A' = (-2, \frac{5}{3})$ $B' = (1, \frac{5}{3})$
 $C' = (1, -\frac{4}{3})$ $D' = (-2, -\frac{4}{3})$



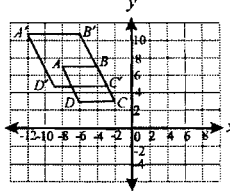
3. $A' = (-8, 0)$ $B' = (0, 8)$
 $C' = (6\frac{2}{3}, 4)$



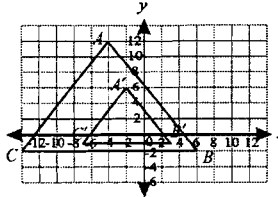
4. $A' = (-2, 14)$ $B' = (2, 14)$
 $C' = (10, 10)$ $D' = (10, 1)$
 $E' = (2, -6)$ $F' = (-2, -6)$
 $G' = (-10, 1)$ $H' = (-10, 10)$



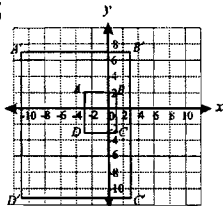
5. $A' = (-12, 10\frac{1}{2})$ $B' = (-6, 10\frac{1}{2})$
 $C' = (-3, 4\frac{1}{2})$ $D' = (-9, 4\frac{1}{2})$



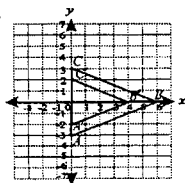
6. $A' = (-2, 6)$ $B' = (3, -1)$ $C' = (-7, -1)$



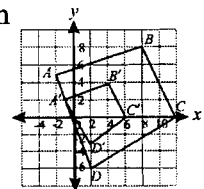
7. 3.5



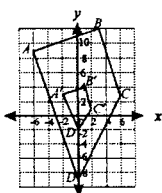
9. $\frac{2}{3}$



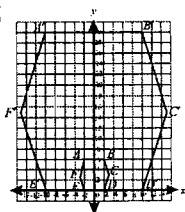
11. Not a dilation



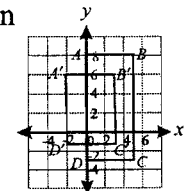
8. $\frac{1}{3}$



10. 5



12. Not a dilation



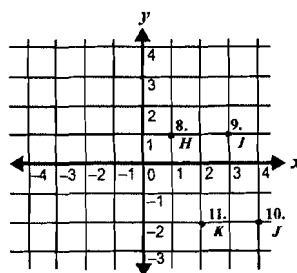
Page 171 Symmetry Practice

- | | |
|------------|---------------|
| 1. E | 7. E |
| 2. D | 8. A, B, C, D |
| 3. A, B | 9. D |
| 4. B | 10. E |
| 5. F | 11. 5 |
| 6. A, B, D | 12. 0 |

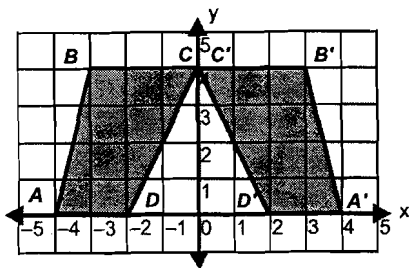
Chapter 12 Review

Pages 172–173

- | | |
|---------------|----------------------------|
| 1. $(-4, 4)$ | 7. $(-2, -3)$ |
| 2. $(-4, 2)$ | 8. see graph to the right |
| 3. $(-1, 2)$ | 9. see graph to the right |
| 4. $(-2, -2)$ | 10. see graph to the right |
| 5. $(1, -2)$ | 11. see graph to the right |
| 6. $(1, -3)$ | 12. parallelogram |

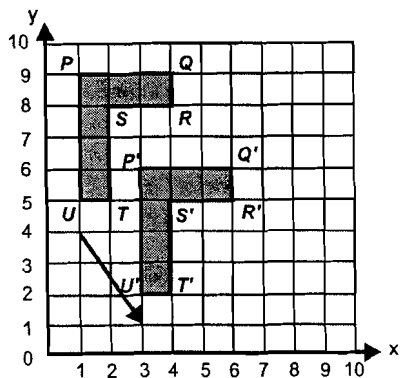


13.



14. $(4, 0)$
 15. $(3, 4)$
 16. $(0, 4)$
 17. $(2, 0)$

18.



19. $(3, 6)$
 20. $(6, 6)$
 21. $(6, 5)$
 22. $(4, 5)$
 23. $(4, 2)$
 24. $(3, 2)$
 25. A
 26. $(6, 8), (12, 20), (-6, 10)$
 27. $(3, \frac{5}{2}), (2, \frac{5}{2}), (\frac{3}{2}, \frac{7}{2})$
 28. $(-12, \frac{21}{2}), (-3, \frac{21}{2}), (-\frac{9}{2}, \frac{9}{2}), (-9, \frac{9}{2})$
 29. translational symmetry
 30. $\frac{1}{2}$ turn rotational symmetry, reflectional symmetry across 2 lines of symmetry
 31. $\frac{1}{4}$ turn rotational symmetry, reflectional symmetry across 4 lines of symmetry
 32. no symmetry
 33. A

Chapter 12 Test
Pages 174–175

1. B 2. A 3. C 4. D 5. D 6. D 7. D 8. A 9. D 10. B

Practice Test 1
Pages 177–188

1. D 8. A 15. D 22. B 29. B 36. A 43. A 50. B 57. A 64. D
2. D 9. C 16. C 23. D 30. D 37. D 44. B 51. B 58. B 65. C
3. D 10. D 17. B 24. A 31. C 38. B 45. D 52. B 59. B 66. A
4. A 11. C 18. C 25. B 32. C 39. B 46. C 53. C 60. C 67. C
5. A 12. B 19. D 26. B 33. C 40. D 47. A 54. C 61. B 68. A
6. B 13. A 20. A 27. B 34. A 41. C 48. D 55. D 62. B 69. D
7. B 14. C 21. D 28. C 35. D 42. A 49. B 56. C 63. C 70. B

Practice Test 2
Pages 189–198

1. A 8. C 15. D 22. C 29. A 36. B 43. D 50. B 57. C 64. B
2. A 9. C 16. D 23. A 30. D 37. A 44. B 51. C 58. A 65. A
3. C 10. B 17. B 24. A 31. B 38. C 45. D 52. B 59. A 66. B
4. C 11. A 18. D 25. B 32. D 39. C 46. C 53. C 60. A 67. C
5. A 12. A 19. A 26. C 33. A 40. C 47. A 54. A 61. D 68. A
6. B 13. B 20. D 27. A 34. D 41. D 48. A 55. B 62. B 69. A
7. B 14. B 21. B 28. B 35. C 42. C 49. D 56. B 63. A 70. B