

Answer Key

1. $\frac{6}{10}$
2. $\frac{5}{10}$
3. $\frac{1}{7}$
4. $\frac{2}{5}$
5. $\frac{3}{4}$
6. $\frac{3}{10}$
7. $1\frac{5}{9}$
8. $1\frac{1}{10}$
9. $1\frac{3}{8}$
10. $1\frac{4}{8}$
11. $1\frac{4}{5}$
12. $\frac{1}{3}$
13. $1\frac{4}{5}$
14. $\frac{1}{9}$
15. $1\frac{2}{4}$
16. $\frac{2}{7}$
17. $1\frac{3}{10}$
18. $\frac{3}{6}$
19. $\frac{4}{6}$
20. $1\frac{4}{10}$
21. $1/3$
22. $2/3$
23. $1/2$
24. $1/4$
25. $3/4$
26. $2/5$
27. $1/8$
28. $1/4$
29. $3/8$
30. $5/8$
31. $1/8$
32. $1/4$
33. $3/8$
34. $5/8$
35. $3/4$
36. $7/8$
37. $1/6$
38. $1/4$
39. $2/3$
40. $3/4$
41. $1/6$
42. $\frac{3}{4}$
43. $\frac{4}{6} = \frac{2}{3}$
44. $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$
45. $1 - \frac{3}{8} - \frac{4}{8} = \frac{1}{8}$
46. $\frac{3}{6} = \frac{1}{2}$ mile
47. 3 miles
48. $\frac{3}{4}$
49. $\frac{2}{9}$
50. $\frac{7}{6}$
51. 42
52. 24
53. 49
54. 63
55. 25
56. 49
57. 63
58. 35
59. 54
60. 36
61. $\frac{22}{3}$
 $7 \times 3 + 1 = 22$
62. $\frac{37}{5}$
 $7 \times 5 + 2 = 37$
63. $\frac{13}{4}$
 $3 \times 4 + 1 = 13$
64. $\frac{19}{4}$
 $4 \times 4 + 3 = 19$
65. $\frac{35}{3}$
 $11 \times 3 + 2 = 35$
66. $\frac{15}{4}$
 $3 \times 4 + 3 = 15$

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67. $\frac{27}{5}$
 $5 \times 5 + 2 = 27$
68. $\frac{43}{6}$
 $7 \times 6 + 1 = 43$
69. $\frac{24}{7}$
 $3 \times 7 + 3 = 24$
70. $\frac{35}{8}$
 $4 \times 8 + 3 = 35$
71. (a) $3 \times 4 \times 2 = 24$ balls
 (b) $1.25 \times 24 = 24 + 6 = \30.00
72. $20 \div 2 = 10$
 $10 - 2 = 8$
73. $20 \div 2 = 10$
 $10 + 4 = 14$ (present)
74. $22 + 2 = 24$ (the sum of their present ages)
 (a) $24 \div 3 = 8$ (Juan)
 (b) $8 \times 2 = 16$ (Bill)
75. Method I)
 $9 \div 3 = 3$
- Method II)
 $90 \times 2 = 180$
 $90 - 9 = 81$
 $180 + 81 = 261$
 $261 \div 3 = 87$
 $90 - 87 = 3$
76. $30 \div 6 = 5$ (days a pound)
 $4 \times 5 = 20$ days
77. $50 + 70 = \$120$
78. $22 + 15 + 17 = 54$ gold coins
79. $3 \times 3 = 9$
 $9 + 9 = 18$
 $24 - 18 = 6$
80. $134 \div 8 = 16R6$
 Ans = 6
81. $144 \div 6 = 24$ cages
82. $33 \times 6 = \$198$
83. $869 + 791 = 1660$ books
84. $68 \div 17 = 4$ gladioli
85. $7 \times 8 + 12 \times 5 = 56 + 60 = 116$
86. B
87. VS, VC, VD
 SC, SD
 CD
 Ans = 6
88. $4 \times 7 = 68$
89. 180
90. A
91. C
 $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$
92. $4 \times 2 \times 1 = \underline{8}$
93. $4 \times (1 + 2 + 1 + 2) = 24$
 $2 \times 1 \times 2 = 4$
 $24 + 4 = \underline{28}$
94. C
95. $1 + (-3 + 5) + (-7 + 9) +$
 $(-11 + 13) + (-15 + 17) = \underline{2}$
96. B
97. D
 $12 \div 2.4 = 120 \div 24 = 5$
98. A
99. C
100. A

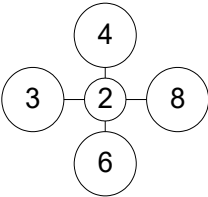
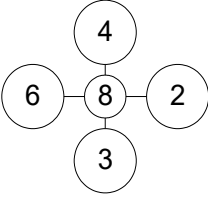
Answer Key

- | | |
|-------------------|--|
| 1. 0.028 | 37. 10.75 |
| 2. 0.12 | 38. 10.5 |
| 3. 0.035 | 39. 1.5 |
| 4. 0.025 | 40. 2.75 |
| 5. 0.03 | 41. 9.5 |
| 6. 0.02 | 42. 3.25 |
| 7. 0.0036 | 43. 10.25 |
| 8. 0.01 | 44. 4.75 |
| 9. 0.0015 | 45. 4.75 |
| 10. 0.0024 | 46. $7\frac{3}{4}$ |
| 11. 100 | 47. $10\frac{1}{2}$ |
| 12. 150 | 48. $5\frac{1}{2}$ |
| 13. 120 | 49. $2\frac{5}{8}$ |
| 14. 100 | 50. $6\frac{3}{8}$ |
| 15. 90 | 51. $1\frac{7}{9}$ |
| 16. 72 | 52. $\frac{1}{6}$ |
| 17. 63 | 53. .00004 |
| 18. 63 | 54. .01 |
| 19. 56 | 55. .04 |
| 20. 56 | 56. .0062 |
| 21. $\frac{1}{2}$ | 57. 2.5 |
| 22. $\frac{1}{3}$ | 58. 20 |
| 23. $\frac{1}{5}$ | 59. 33.6 |
| 24. $\frac{2}{3}$ | 60. 102000 |
| 25. $\frac{3}{4}$ | 61. C |
| 26. $\frac{2}{5}$ | 62. D |
| 27. $\frac{4}{5}$ | 63. A |
| 28. $\frac{2}{7}$ | 64. C |
| 29. $\frac{3}{7}$ | 65. A |
| 30. $\frac{4}{7}$ | 66. C |
| 31. $\frac{6}{7}$ | In the list |
| 32. $\frac{3}{8}$ | 3 , 5, 9 , 11, 15 , 17, |
| 33. $\frac{7}{8}$ | the boldfaced numbers are multiples of 3. |
| 34. $\frac{2}{9}$ | 67. C |
| 35. $\frac{4}{9}$ | 68. D |
| 36. 2.5 | 69. C |
| | 70. C |
| | 71. A |
| | 72. A |
| | 73. C |

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74. C
75. D
76. A
77. D
78. D
79. A
80. A
81. $\frac{3}{4} \times (1 - \frac{2}{3}) = 1/4$
82. $243 - 83 = 160$
 $160 \div 80 = 2$
 $2 \times 37.50 = \$75.00$
83. $400 \times 15\% = 400 \times 0.15 = 4 \times 15 = \60
84. $(6\frac{1}{6} + 4\frac{1}{3}) \times 12 = 126$ roses
85. $2\frac{1}{2} \times 12 = 24 + 6 = 30$ inches
86. B
 A: $12.60 \div 30 = 0.42$ per pound
 B: $30.12 \div 80 = 0.38$ per pound
87. $\frac{6}{24} = \frac{1}{4} = 0.25 = 25\%$
88. $96 \div 6 = 16$ (miles per gallon)
 $240 \div 16 = 15$ gallons
89. D
90. $11 + 22 + 33 = 66$
 $\frac{11+33}{66} = \frac{2}{3} = 2/3$
91. distance = $\frac{2}{3} \times 6 = 4$ miles
 time for biking = $\frac{4}{8} = \frac{1}{2}$ hr = 30 min
92. $136 \div 16 = 8.5$ (lb)
93. 160000
94. $9 + 2 + 2 = 13$
95. A
 Shoppers: $1.87 \div 6 = 0.31\dots$
 Thrift Way: $2.90 \div 8 = 0.36\dots$
96. (7 to 9) $70 + 101 + 29 = 200$
 (10 to 12) $84 + 73 + 118 = 275$
 $200:275 = 8:11$
97. $12 \div 3 = 4$
 $42.00 \times 4 = \$168$
98. $80 \times \frac{60}{12} = 80 \times 5 = 400$ mph
99. $60 \times 5\% = 60 \times 0.05 = 6 \times 5$
 $= \$3.00$
100. $60 + 3 = \$63.00$
 or
 $1 + 5\% = 1.05$
 $60 \times 1.05 = \$63$

Answer Key

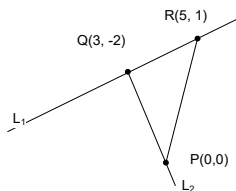
1. 6
2. $\frac{1}{20}$
3. $\frac{1}{6}$
4. $\frac{2}{5}$
5. $\frac{1}{6}$
6. $\left(\frac{14}{5}\right)\left(\frac{15}{7}\right) = 6$
7. $\left(\frac{10}{3}\right)\left(\frac{9}{5}\right) = 6$
8. $\left(\frac{14}{3}\right)\left(\frac{9}{7}\right) = 6$
9. 20
10. 23
11. 12
12. 15
13. 30
14. 56
15. 36
16. 42
17. 30
18. 72
19. 8%
20. 20%
21. 30%
22. 50%
23. 70%
24. 80%
25. 120
26. 120
27. 60
28. 128
29. 70
30. 90
31. 150%
32. 260%
33. 175%
34. 380%
35. 305%
36. $1\frac{4}{5}$
37. $3\frac{3}{5}$
38. $2\frac{13}{20}$
39. $1\frac{11}{20}$
40. $2\frac{9}{25}$
41. $(100 - 10) \div x = 1$
 $x = 90$
42. $8:6 = 4:3$
43. $3 \text{ hr } 15 \text{ min} = 3\frac{1}{4} \text{ hr}$
 $\frac{26}{3\frac{1}{4}} = 8 \text{ mph}$
44. $2 \frac{1}{2}$
45. $1 - 80\% = 20\%$
46. C
47. What are the possible outcomes? They are 15 different outcomes:
 $(0, 1), (0, 2), (0, 3), (0, 4), (0, 5)$
 $(1, 2), (1, 3), (1, 4), (1, 5)$
 $(2, 3), (2, 4), (2, 5)$
 $(3, 4), (3, 5)$
 $(4, 5)$
Among these outcomes, only $(0, 3)$ and $(1, 2)$ can yield the sum of 3.
 $\text{Pr}(\text{a sum of } 3) = \frac{2}{15} = 2/15$
48. $\frac{\text{tax}}{\text{cost without tax}} = \frac{31.50 - 30}{30} = 0.05 = 5\%$
49. 6 different orders
ABC, ACB, BAC, BCA, CAB, and CBA.
50. How can you choose two pairs of numbers, among 2, 3, 4, 6, and 8, with same product? After several combination you will be able to find that $3 \times 8 = 4 \times 6 = 24$. So, let's place them at the corner as the diagram below.

The other possibility is $2 \times 6 = 3 \times 4$. So, arrange 8 at the middle, 2 and 6 at the sides, 3 and 4 at the poles.


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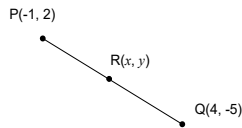
- | | |
|---|--|
| <p>51. $20 \times 3 \div 7\frac{1}{2} = 60 \times \frac{2}{15} = 8$ packages</p> <p>52. $\frac{1}{6}$</p> <p>53. $120 \div 160 = \frac{3}{4}$</p> <p>54. $120 \div 3 = 40$
$40 \times 1.06 = \\$42.40$</p> <p>55. $54 \times 2 = 108$ (distance in round trip)
$\frac{108}{2\frac{1}{4}} = 48$ mph</p> <p>56. C</p> <p>57. 2 hours and 45 minutes = $2\frac{3}{4}$ hours
$2\frac{3}{4} \times 500 = 1375$ miles</p> <p>58. B
$7 + 11 - 4 = 14$
$30 - 14 = 16$</p> <p>59. $\frac{80}{60} \times 90 = \frac{4}{3} \times 90 = \\120</p> <p>60. area of the white triangle = $\frac{1}{2}(1 \times 4) = 2$
area of the shaded region = $3 \times 4 - 2 = 10$ (shaded area)</p> <p>61. 8</p> <p>62. .000005</p> <p>63. .00006</p> <p>64. 21</p> <p>65. 0.0039</p> <p>66. $1\frac{2}{3} = 1\frac{2}{3}$</p> <p>67. 800</p> <p>68. 3</p> <p>69. $26 \div 20 = 1.30 = 130\%$</p> | <p>70. 70</p> <p>71. $\frac{2}{3} = 2/3$</p> <p>72. -5</p> <p>73. 84</p> <p>74. 13</p> <p>75. 80%</p> <p>76. 110</p> <p>77. 88.3</p> <p>78. {1, 2, 4, 5, 7, 10, 14, 20, 28, 35, 70, 140}</p> <p>79. $\Delta = 6$</p> <p>80. $\frac{1}{5}$</p> <p>81. A</p> <p>82. C</p> <p>83. B</p> <p>84. B</p> <p>85. A</p> <p>86. B</p> <p>87. A</p> <p>88. C</p> <p>89. D</p> <p>90. B</p> <p>91. C</p> <p>92. A</p> <p>93. B</p> <p>94. D</p> <p>95. D</p> <p>96. A</p> |
|---|--|

Answer Key

1. $2x + 3y = 0$
2. Solving the system of linear equations
 $3x - 2y = 13$
 $2x + 3y = 0$
 we find the intersection is $Q(3, -2)$.
3. The distance between P and Q = $\sqrt{13}$
4. What is the length of QR? It is
 $\sqrt{(5-3)^2 + (1-(-2))^2} = \sqrt{13}$.
 The area of the right triangle =
 $\frac{1}{2} \times \sqrt{13} \times \sqrt{13} = 6.5$



5. The slope = $\frac{-5-2}{4-(-1)} = \frac{-7}{5}$.



6. Since the slope is $\frac{-7}{5}$ and the line passes through P, thus we have the point-slope form:
 $y - 2 = \frac{-7}{5}(x + 1)$
7. By rearranging the point-slope form, we can obtain the slope-intercept form,
 $y = \frac{-7}{5}x + \frac{3}{5}$.
Alternative (slope-intercept form):
 $y = \frac{-7}{5}x + b$
 Since the line passes through P and Q $\Rightarrow$ Let's choose P(-1, 2) to satisfy the equation:
 $2 = \frac{-7}{5}(-1) + b$
 $b = \frac{3}{5}$
8. Parallel
9. Parallel
10. Perpendicular
11. $x = 26$
12. $1/4$
13. $x = 5$
14. $x = -3$
15. $x = -2$
16. $x = -1$
17. $x = 0$

18. -2
19. $x = 3$
20. $x = -2$
21. 54
22. -36
23. 32
24. $1/16$
25. 18
26. 8
27. -80
28. -6
29. -12
30. 6
31. $\frac{16}{64} = \frac{1}{4} = 25\%$
32. -.00005
33. $\frac{2 \times 8}{12.5 \times 8} = \frac{16}{100} = 16\% = 0.16$
34. $(1.2)^2 \times 5^2 = (1.2 \times 5)^2 = 6^2 = 36$
35. -9
36. D
37. 13
38. 16 & 8
39. A
40. $2\sqrt{3} \times 7\sqrt{3}$
 $= 14 \times 3$
 $= \boxed{42}$
41. $\frac{1}{7} = 1/7$
42. 45% of 40 = $0.45 \times 40 = 18$
43. $2/3$
44. $5/3 = 1 \frac{2}{3}$
45. 190
46. 12
47. $0.2 \times 30 = 6$
48. -112
49. .0098
50. $1+2+3+4+6+8+12+24 = 60$
51. $15 \times 20 = 300$
 $300 \div (15 - 3) = 25$ days
52. $24\frac{1}{2} - 12\frac{5}{8} = 11\frac{7}{8}$
 $4 \times 11\frac{7}{8} = 44\frac{7}{2} = \47.50
53. $\frac{1}{3} \times 18 = 6$

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54. $18 \div \frac{3}{4} = 24$
 $18 + 6 = 24$

55. B
 $2 \times 2 = 4$
 $3 \times 4 + 2 = 14$
 $4 \times 14 = 56$

56. $\frac{3}{8} = 3/8$

57. $0.6 \div 4 = 0.15$
 $0.15 \times 50 = \$7.50$

58. $33 \times 0.15 = \$4.95$
 Ans = 33 minutes

59. $91 \div 35 = \frac{91}{35} = \frac{13}{5} = 2.6$ hours = 2 hr & 36 min

60. $\frac{5000 - 4000}{5000} = 0.2 = 20\%$

61. $27 \div 3 = 9$
 8, 9, 10
 $8 \times 9 \times 10 = 720$

62. $\frac{3}{2}$ or $1\frac{1}{2} = 1\frac{1}{2}$

63. $\frac{35}{5} \times 8 = 7 \times 8 = \56

64. 30

65. C
 The LCM of 2 and 3 is 6, which means they will meet each other every 6 days. So, the earliest day they are going to meet is next Monday.

66. $\frac{1}{2} \times 12 \times 12 = 72$
 $72 \div 4 = 18$
 $18 \times 6 = 108$ plants

67. A
 She can buy ice cream every 12 days.
 3, 6, 9, 12, 15, 18, 21, 24
 4, 8, 12, 16, 20, 24
 The next time she can buy it will be 12 days later, which is a Saturday.

68. $30 \times \frac{1400}{8}$
 $= 30 \times 14 \times 125$
 $= 15 \times 7 \times (2 \times 2 \times 125)$
 $= 15 \times 7 \times 500$
 $= 105 \times 500$
 $= \underline{52,500 \text{ pounds}}$

69. Mon = 3
 Tue = 6
 Wed = 12
 Thu = 24
 Fri = 48 cards

70. $1yx9 \times 9 = 9xy1$
 or

$9xy1 \div 9 = 1yx9$

What is the quotient in the long division of

$9xy1 \div 9$?

If $x = 9$, then $y = 1$, but 9911 is not divisible by 9.

Therefore, $x \neq 9$, thus the quotient of $9xy1 \div 9$ must be $10y9$. To be divisible by 9,

$1 + 0 + y + 9$ must be divisible by 9, so $y = 8$.

Ans = 1089

71. $5\frac{1}{2} = 5\frac{1}{2}$

72. $3\frac{7}{12} = 3\frac{7}{12}$

73. 1.2

74. 6.4

75. $2\frac{1}{4} \text{ lb} = 2\frac{1}{4} \times 16 \text{ oz} = 36 \text{ oz.}$

76. $105 \text{ min} = 1 \text{ hr}$ and $45 \text{ min} = 1\frac{3}{4} = 1\frac{3}{4} \text{ hr}$

77. 240,000

78. 3120000

79. $x = 9$

80. $1\frac{1}{2} \times 2\frac{2}{3} = \frac{3}{2} \times \frac{8}{3} = 4$

81. $\frac{1}{96}$

82. 135%

83. 10

$79 \div 8 = 9R7$

84. $7.5 \div 3 = 2.5$

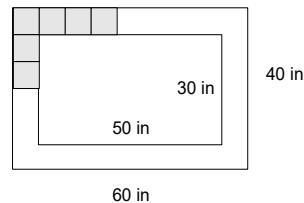
$2.5 \times 140 = 350$ miles

85. The sum is 36.

Dan is 24 and Anna is 12.

$D - A = 12$

86. $40 \times 60 - 1500 = 900 \text{ in}^2$



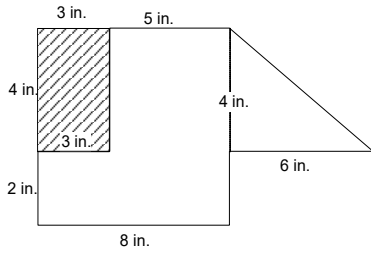
87. $1 - \frac{1}{3} - \frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$ (unsold)

$1 - \frac{1}{3} = \frac{2}{3}$ (sold)

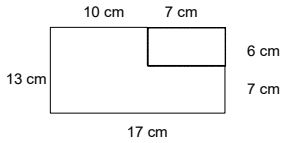
$50 \times 2 = 100$

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88. $8 \times 6 - 3 \times 4 + \frac{1}{2}(4 \times 6) = 48 - 12 + 12 = 48$



89. $P = 2 \times (13 + 17) = 60 \text{ (cm)}$



90. $1 + 20\% = 1.2$
 $1.2 \times 12 = \$14.40$

91. B
 92. C
 93. C
 94. C

95. A
 96. B
 97. D
 98. B
 99. B
 100. C
 101. B

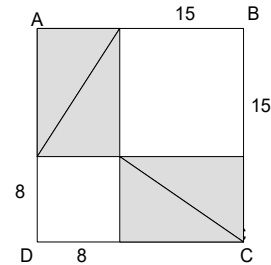
$25 \div \frac{1}{2} = 50$
 $2\frac{1}{3} \times 50 = 113\frac{1}{3}$

102. D
 103. D
 104. B
 105. A
 106. A
 107. D
 108. C
 109. D

110. $32.00 \div 4 = 8.00$
 $8.00 \times 0.15 = 1.20$
 $8.00 + 1.20 = \$9.20$

Answer Key

1. $2x^2 + 2x - 6$
2. $4x^2 - 13x + 10$
3. $-12x^2 - 4x - 4$
4. $-2x^2 + 3x - 4$
5. $6x - 8$
6. $3x - 3$
7. $-12 - 4x$
8. $-15x + 3$
9. $6x^2 - 11x - 5$
10. $4x^2 + 4x - 6$
11. 0.0441
12. 7.72
13. 204
14. 890
15. 13500
16. 1210000
17. 4840000
18. $20\% \times 750 = 150$
19. $4/10 = \frac{2}{5} = 2/5$
20. 120%
21. 32%
22. $26 \div 20 = 1.30 = 130\%$
23. 100
24. 48.6
25. 0.3
26. $140 \times 85\% = 119$
27. 0.896
28. 25
29. $\frac{60-30+20-15+12}{60} = \frac{47}{60} = 47/60$
30. The numerator: $1 + \frac{1}{2} + \frac{1}{3}$ and denominator: $\frac{1}{2} - \frac{1}{3}$ need to be simplified and changed into an improper fraction. $\frac{1+\frac{1}{2}+\frac{1}{3}}{\frac{1}{2}-\frac{1}{3}} = \frac{\frac{6}{6}+\frac{3}{6}+\frac{2}{6}}{\frac{3}{6}-\frac{2}{6}} = \frac{(\frac{11}{6})}{(\frac{1}{6})} = \frac{11}{6} \times \frac{6}{1} = 11$
31. $(-1)^{1 \times 2 \times 3} = (-1)^6 = 1$
[Note: $(-1)^{\text{even}} = 1, (-1)^{\text{odd}} = -1$]
32. 0.08
33. $\frac{3}{14} = 3/14$
34. .00007
35. $3600 \div 9 = 400 \text{ yd}^2$
36. 15
37. $200 \times 2800 = 560000 = 5.6 \times 10^5$
 $a = 5$
38. $36 = 60\% \times 60$
Ans = 60%
39. $3x - 13 = -\frac{1}{2}x + 1$
 $3\frac{1}{2}x = 14$
 $x = 4$
40. $\frac{\frac{9}{4}}{\frac{5}{3}} = \frac{27}{20} = 27/20$
41. $168 = 24 \times 7$
 $312 = 24 \times 13$
GCD = 24
42. 3250
43. $9^2 \cdot 3^4 = 9^2 \times 9^2 = 9^4$
 $\square = 4$
44. $2 \times \text{area}(\triangle ABC)$
 $= 6 \times 12.5 = 10 \times 7.5$
BC = 7.5
perimeter
 $= 10 + 7.5 + 12.5 = 30 \text{ cm}$
45. Method I)



Merge the triangles to form two rectangles as the above. The remaining region is left with two separate squares. The combined area is $8^2 + 15^2 = 289$.

Method II)
 $\text{area}(\square ABCD) = 23^2 = 529$
 $\text{area}(\triangle AEH) = \frac{1}{2}(8)(15) = 60$
 $529 - 4 \times 60 = 289$

46. $20 \times (15 + 10) + 10 \times 6 = 560 \text{ in}^2$
47. $3 \times 3 + 2 = 11$
 $11 \times 12 = 132 \text{ in}$
48. $9.45 \div 3 = \$3.15$
49. 60°

MAP 270 (T2) Issue 3

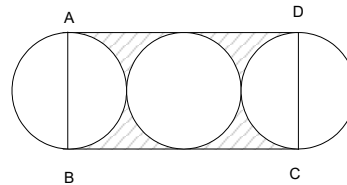
50. $8\% \times 12,000 = 8 \times 120 = 960$
 $960 \times 2 = \$1,920$
51. $\frac{1}{4} = \frac{1}{4}$
52. $5x - 2 = 4x + 6$
 $x = 8$
53. C
54. $80\% \times 15 = 12$
 $5 + 15 = 20$
 $20 \times 0.75 = 15$
 $15 - 12 = 3$ games
55. $\angle CBA = 80^\circ, x = \frac{1}{2}(80) = 40$
56. $5\frac{1}{4} \times 24 = 126$ (miles)
57. A
 $r = 5$
 $\text{area} = 25\pi$
 $\text{shade area} = 100 - 25\pi$.
58. Group them every 3 numbers. The sums of these groups are
 $0, 3, 6, \dots, 96$
 $97 + 98 - 97 = 96$
59. D
 The radius of a small circle is 2, so each circle has an area of 4π , therefore, four circles have a combined area of 16π . (Amazingly, the area is the same as the previous problem.) The area of the shaded region is $64 - 16\pi$.
60. $120 + 110 + 108 + 112 = 450$
 The total commission he was to receive for 5 weeks:
 $125 \times 5 = 625$
 So, he must receive
 $625 - 450 = \$175$ for the 5th week commission.
61. $0.72 \div 4 = 0.18$
 $7 \times 0.18 = \$1.26$
62. $10 \div 5 = 2$
 $2^2 = 4$
 $2.5 \times 4 = \$10$
63. $2 \times 6 - 3 \times 7 = -9$
64. $100 \times 8\% \times 2 = 16$ ounce
65. $12 \times 4 = 48$
66. $12 \div 4 = 3$
67. $17 + 89 - 4 = 102$
 $1530 \div 102 = 15$ mpg
68. $75 \times 3 = 225$
 $225 - 85 = 140$
 $140 \div 2 = 70$
69. $0.2 \div 4 = 0.05$
 $0.05^2 = 0.0025$ in²
70. Alex: $\frac{1}{2} \times 18 = 9$
 Brian: $\frac{1}{3} \times 18 = 6$
 Charlie: $\frac{1}{6} \times 18 = 3$
 $9 + 6 + 3 = 18$ (great match)
 $9 - 2 = 7$
71. A
72. -8
73. C
74. B
75. C
76. C
77. B
78. D
79. C
80. C
81. B
82. C
83. A
84. 314.159
85. 12
86. D
 $6 \times \frac{7}{4} = \frac{21}{2} = 10\frac{1}{2}$
87. B
88. C
89. B
90. A

Answer Key

1. D
 $2^{x+2} = 4(2^x) = 4 \times 3 = 12$
2. A
 $150 \times 4 = 600$
 $600 - (110 + 170 + 200) = 120$
3. C
4. C
5. 195, 196, 197, 198, 199, 200, 201, 202, 203, 204
the average $= \frac{1}{2}(199 + 200) = \boxed{199.5}$
6. C
7. A
8. D
 $15 \times 4 = 60$
 $60 \div 24 = 2 \text{ R } 12$
9:00 A.M. + 12:00 = 9:00 P.M.
9. $\frac{a^3}{6}$
10. D
11. 2
12. D
13. \$432
14. A
 $120 \div 30 = 4 \text{ (hr)}$
AC = 130
 $50 + 130 = 180$
 $180 \div 4 = 45$
15. D
16. C
 $1365 = 13 \times 105 = 13 \times 3 \times 7 \times 5$
 $13 + 3 = 16$
17. C
18. C
19. C
20. D
21. $\frac{108}{144} = \frac{3}{4} = 75\%$
22. 1×10^{-4}
23. $n = 120$
24. $\frac{14}{3} = 4\frac{2}{3} = 4\frac{2}{3}$
25. 16
26. B

$$\frac{x^2 - 6x + 9}{3x - 9} = \frac{(x - 3)^2}{3(x - 3)} = \frac{x - 3}{3}$$

27. $25\% = .25 = \frac{1}{4}$
 $.25 \times 24 = \frac{1}{4} \times 24 = 6 \text{ (hr)}$
28. AM : MB = 2 : 3 = 6 : 9
M = -2 + 6 = 4
29. $60 \times 0.8 = 48 \text{ (at sale price)}$
 $48 \times 0.9 = 43.2$
 $60 - 43.2 = \$16.80$
30. 12 d
31. Divide ABCD into two equal squares, each with an area of 100 cm^2
AB = 10 cm



32. B
Since the radius is 5, each circle has an area of 25π , the shaded part is $200 - 50\pi$.
33. $75\% \times 28 = \frac{3}{4} \times 28 = 21$
 $28 + 12 = 40$
 $40 \times 80\% = 32$
 $32 - 21 = 11$
34. $\frac{120}{4} = 30 \text{ mph}$
 $\frac{\frac{120}{4}}{4-1} = 40 \text{ mph}$
 $40 - 30 = 10 \text{ mph faster}$
35. C
36. $110 + 75 + 315 = 500$
 $185 \div 500 = 37\%$
37. $75 \div 3 = 25$
 $25 = 5^2$
 $5 \times 8 = 40$
38. $2\pi(\frac{2}{\pi}) = 4 \text{ (circumference of one circle)}$
 $4 \times 4 = 16$
39. $5b + 5e = 1750$
 $b + e = 350$
 $2b + 2e = 700$
 $e = 150$
 $b = 200$
Ans = 200 (best) & 150 (economy)
40. Since -1 is the midpoint between r and -5, $r = 3$.
 $y = a(x + 5)(x - 3)$ attains the maximum of 16 at -1, $a = -1$.
 $f(0) = 15$
41. C

MAP 280 (T2) Issue 3

42. -6

43. A

44. A, C, E

45. B, E, F

46. 21

47. D

48. C

49. D

50. A

51. C

52. B, C, D, E

53. -12

54. A

55. 121

56. D

57. B

58. $x = 4$
 $y = -3$

59. C, E

60. B

61. B, G

62. C

63. B

64. D

65. $k = -4$

66. D, E

67. $(0.8^2)x = 20,480$
 $x = 4000$

68. $\frac{-1}{125}d^2 + d = -\frac{1}{125}d(d - 125) = 0$
 $d = 125$

69. C

70. A

71. B

72. B

73. C

74. B

75. A, E

76. D