

Answer Key

- | | | |
|-----------------------|-----------------------|--------------------|
| 1. (A) absolve | 43. (C) liability | 85. (C) liability |
| 2. (D) cede | 44. (B) lenient | 86. (E) masterful |
| 3. (C) burglary | 45. (D) marine | 87. (F) mettlesome |
| 4. (E) convenience | 46. (A) jugglery | 88. (H) precede |
| 5. (B) augment | 47. (B) lenient | 89. (I) presuppose |
| 6. (C) burglaries | 48. (E) masterful | 90. (A) jugglery |
| 7. (B) augment | 49. (D) Marine | |
| 8. (D) cede | 50. (C) liability | 1. B |
| 9. (E) convenience | 51. (E) quiver | 2. C |
| 10. (A) absolved | 52. (D) presuppose | 3. D |
| 11. (E) disaffect | 53. (A) mettlesome | 4. C |
| 12. (B) crimp | 54. (B) momentous | 5. A |
| 13. (C) dauntless | 55. (C) precede | 6. D |
| 14. (A) converge | 56. (A) mettlesome | 7. A |
| 15. (D) dirge | 57. (C) precedes | 8. C |
| 16. (B) crimped | 58. (B) momentous | 9. B |
| 17. (C) dauntless | 59. (D) presupposes | 10. A |
| 18. (A) converge | 60. (E) quivered | 11. A |
| 19. (E) disaffected | 61. (B) augment | 12. B |
| 20. (D) dirge | 62. (C) burglary | 13. A |
| 21. (C) enunciate | 63. (D) cede | 14. B |
| 22. (B) enterprise | 64. (E) convenience | 15. D |
| 23. (A) endearment | 65. (F) converge | 16. D |
| 24. (E) famish | 66. (A) absolve | 17. C |
| 25. (D) excerpt | 67. (I) dirge | 18. C |
| 26. (E) famished | 68. (J) disaffect | 19. C |
| 27. (C) enunciate | 69. (G) crimp | 20. B |
| 28. (A) endearments | 70. (H) dauntless | 21. A |
| 29. (B) enterprise | 71. (A) endearment | 22. B |
| 30. (D) excerpt | 72. (G) genial | 23. A |
| 31. (C) gibe | 73. (I) gymnastics | 24. C |
| 32. (D) gymnastics | 74. (H) gibe | 25. C |
| 33. (E) impracticable | 75. (J) impracticable | 26. D |
| 34. (A) gaffe | 76. (B) enterprise | 27. D |
| 35. (B) genial | 77. (D) excerpt | 28. A |
| 36. (C) gibe | 78. (C) enunciate | 29. B |
| 37. (E) impracticable | 79. (E) famish | 30. D |
| 38. (D) gymnastics | 80. (F) gaffe | 31. D |
| 39. (A) gaffe | 81. (G) momentous | 32. A |
| 40. (B) genial | 82. (J) quiver | 33. A |
| 41. (A) jugglery | 83. (B) lenient | 34. D |
| 42. (E) masterful | 84. (D) marine | 35. D |

- 36. D
- 37. B
- 38. B
- 39. C
- 40. B
- 41. C
- 42. B
- 43. C
- 44. D
- 45. C
- 46. B
- 47. B
- 48. D
- 49. D
- 50. D
- 51. A
- 52. D
- 53. B
- 54. B
- 55. A
- 56. D
- 57. C
- 58. B
- 59. C
- 60. C
- 61. C
- 62. B
- 63. A
- 64. C
- 65. C
- 66. D
- 67. A
- 68. D
- 69. D
- 70. C

Answer Key

1. 8
2. $-\frac{1}{7}$
3. .000005
4. .00006
5. 21
6. 0.0039
7. $1\frac{2}{3}$
8. 800
9. 3
10. 8000000
11. $26 \div 20 = 1.30 = 130\%$
12. 6,000
13. 70
14. $\frac{2}{3}$
15. -5
16. 84
17. 13
18. 80%
19. 110
20. 88.3
21. {1, 2, 4, 5, 7, 10, 14, 20, 28, 35, 70, 140}
22. $\Delta = 6$
23. -8
24. $.012 \times 9 = .108$
25. $.064 \div 800 = .00008$
26. .0062
27. 0.028
28. 9.72
29. 840
30. -6
31. -11400
32. 95
33. 188
34. 6,000
35. 351000
36. $43\% \times 60 = 25.8$
37. 2.54
38. 5.46
39. 3.9
40. 6 R 1
41. 17
42. $\frac{48}{36} = \frac{4}{3} < \frac{3}{2} = \frac{12}{8}$
43. 3
44. $\frac{1.3}{26} = \frac{3.9}{7.8}$
45. $50 \div 8 = 6 \text{ R } 2$
46. $120 \div 4 = 30$
47. $144 \div 4 = 36$
48. $168 \div 2 = 84$
49. $\square = 3$
50. $\square = 8$
51. $\square = 4$
52. $\square = 14$
53. $\square = 8$
54. $\square = 8$
55. $\square = 4$
56. $\square = 11$
57. $\square = 2$
58. $\square = 11$
59. $\square = 7.1$
60. $\square = 10.1$
61. $\square = 0.05$
62. $\square = 0.22$
63. $\square = 121$
64. $\square = 12$
65.
$$\begin{array}{r} \frac{10}{15} \\ - \frac{1}{15} \\ \hline \end{array} = \frac{9}{15} = \frac{3}{5}$$
66.
$$\begin{array}{r} 6\frac{15}{20} \\ - \frac{11}{20} \\ \hline \end{array} = 6\frac{4}{20} = 6\frac{1}{5}$$
67.
$$\begin{array}{r} 3\frac{16}{30} \\ - \frac{25}{30} \\ \hline \end{array} = 2\frac{21}{30} = 2\frac{7}{10}$$
68.
$$\begin{array}{r} \frac{20}{30} \\ - \frac{3}{30} \\ \hline \end{array} = \frac{17}{30}$$
69.
$$\begin{array}{r} \frac{23}{24} \\ + \frac{16}{24} \\ \hline \end{array} = \frac{39}{24} = \frac{13}{8} = 1\frac{5}{8}$$
70.
$$\begin{array}{r} \frac{28}{48} \\ - \frac{18}{48} \\ \hline \end{array} = \frac{10}{48} = \frac{5}{24}$$

GT MS (CogAT Numbers) (Fall, 2019) Issue 1

$$71. \quad \begin{array}{r} 3\frac{10}{12} \\ - \quad \frac{9}{12} \\ \hline \end{array} = 3\frac{1}{12}$$

$$72. \quad \begin{array}{r} 22 \\ 30 \\ + \quad \frac{21}{30} \\ \hline \end{array} = 1\frac{13}{30}$$

$$73. \quad 2 \times (3\frac{3}{4} + 8) = 23\frac{1}{2} \text{ (inches)}$$

$$74. \quad 35\frac{1}{2} + 20\frac{3}{4} + 15\frac{1}{8} = 70\frac{4+6+1}{8} = 71\frac{3}{8} \text{ (pounds)}$$

$$75. \quad \frac{4}{24} + \frac{5}{24} = \frac{9}{24} = \frac{3}{8}$$

$$76. \quad \begin{array}{r} 3\frac{62}{70} \\ + \quad 2\frac{49}{70} \\ \hline \end{array} = 6\frac{41}{70}$$

$$77. \quad \begin{array}{r} 7 \\ 16 \\ - \quad \frac{6}{16} \\ \hline \end{array} = \frac{1}{16}$$

$$78. \quad \begin{array}{r} 5\frac{11}{35} \\ - \quad 2\frac{7}{35} \\ \hline \end{array} = 3\frac{4}{35}$$

$$79. \quad 6 + (\frac{1}{2} + \frac{2}{3} + \frac{1}{4}) = 6 + \frac{6+8+3}{12} = 7\frac{5}{12}$$

$$80. \quad \begin{array}{r} 9 \\ 12 \\ + \quad \frac{2}{12} \\ \hline \end{array} = \frac{11}{12}$$

$$81. \quad \begin{array}{r} 15 \\ 20 \\ + \quad \frac{14}{20} \\ \hline \end{array} = \frac{29}{20} = 1\frac{9}{20}$$

$$82. \quad \begin{array}{r} 9\frac{21}{48} \\ - \quad 9\frac{12}{48} \\ \hline \end{array} = \frac{9}{48} = \frac{3}{16}$$

$$83. \quad 19$$

84. Method I:

As the most students would do,

$$\frac{15}{7} \times \frac{3}{35} =$$

$$\frac{45}{245} = \frac{9}{49}$$

Method II)

$$\frac{15}{7} \times \frac{3}{35} =$$

Since 15 and 35 have a common factor of 5, so we can divide them both by 5 first.

$$\frac{3}{7} \times \frac{3}{7} = \frac{9}{49}$$

$$85. \quad \frac{6}{5}$$

$$86. \quad \frac{3}{10}$$

$$87. \quad \frac{1}{20}$$

$$88. \quad \frac{8}{21}$$

$$89. \quad \frac{4}{9}$$

$$90. \quad \frac{2}{9}$$

$$91. \quad \frac{9}{20}$$

$$92. \quad \frac{12}{35}$$

$$93. \quad \frac{7}{24}$$

$$94. \quad \frac{27}{140}$$

$$95. \quad \frac{8}{33}$$

$$96. \quad \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$97. \quad \frac{1}{2} \times 14 = 7$$

$$98. \quad \frac{3}{5} \times \frac{2}{3} = \frac{2}{5}$$

$$99. \quad \frac{5}{6} \times 24 = 20$$

$$100. \quad \frac{7}{10} \times \frac{3}{14} = \frac{3}{20}$$

Answer Key

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|-----------------------|-----------------------|----------------------|
| 1. (B) alibi | 43. (A) incense | 85. (E) manor |
| 2. (C) apathy | 44. (B) innocuous | 86. (J) pestilential |
| 3. (A) abject | 45. (D) legion | 87. (G) myriad |
| 4. (D) beseech | 46. (A) incensed | 88. (B) innocuous |
| 5. (E) cacophony | 47. (C) irremediable | 89. (H) ocher |
| 6. (A) abject | 48. (D) Legions | 90. (A) incense |
| 7. (E) cacophony | 49. (E) manor | 91. C |
| 8. (C) apathy | 50. (B) innocuous | 92. C |
| 9. (B) alibi | 51. (A) misuse | 93. A |
| 10. (D) beseeched | 52. (B) myriad | 94. B |
| 11. (B) commemorative | 53. (E) pestilential | 95. A |
| 12. (D) convivial | 54. (C) ocher | 96. A |
| 13. (A) cilia | 55. (D) panache | 97. A |
| 14. (C) connivance | 56. (E) pestilential | 98. D |
| 15. (E) curt | 57. (D) panache | 99. C |
| 16. (C) connivance | 58. (B) myriads | 100. C |
| 17. (E) curt | 59. (C) ocher | 101. D |
| 18. (A) cilia | 60. (A) misuse | 102. C |
| 19. (D) convivial | 61. (E) cacophony | 103. D |
| 20. (B) Commemorative | 62. (H) connivance | 104. C |
| 21. (A) denunciation | 63. (I) convivial | 105. B |
| 22. (E) ennoble | 64. (F) cilia | 106. D |
| 23. (B) dilemma | 65. (J) curt | 107. D |
| 24. (D) effeminate | 66. (A) abject | 108. B |
| 25. (C) distant | 67. (G) commemorative | 109. D |
| 26. (A) denunciation | 68. (B) alibi | 110. B |
| 27. (E) ennobled | 69. (D) beseech | 111. B |
| 28. (D) effeminate | 70. (C) apathy | 112. C |
| 29. (B) dilemma | 71. (J) idyll | 113. B |
| 30. (C) distant | 72. (A) denunciation | 114. D |
| 31. (C) foresight | 73. (D) effeminate | 115. B |
| 32. (A) evince | 74. (I) gossamer | 116. D |
| 33. (D) gossamer | 75. (F) evince | 117. A |
| 34. (E) idyll | 76. (E) ennoble | 118. A |
| 35. (B) faction | 77. (G) faction | 119. D |
| 36. (D) gossamer | 78. (B) dilemma | 120. D |
| 37. (A) evinced | 79. (C) distant | 121. B |
| 38. (E) idyll | 80. (H) foresight | 122. C |
| 39. (C) foresight | 81. (I) panache | 123. A |
| 40. (B) factions | 82. (F) misuse | 124. D |
| 41. (E) manor | 83. (C) irremediable | 125. C |
| 42. (C) irremediable | 84. (D) legion | 126. C |

- 127. D
- 128. A
- 129. C
- 130. D
- 131. D
- 132. A
- 133. C
- 134. C
- 135. C
- 136. B
- 137. B
- 138. A
- 139. B
- 140. A
- 141. B
- 142. A
- 143. C
- 144. B
- 145. B
- 146. C
- 147. D
- 148. D
- 149. B
- 150. D
- 151. A
- 152. B
- 153. C
- 154. B
- 155. C
- 156. D
- 157. C
- 158. D
- 159. A
- 160. D



Answer Key

- | | |
|--------------|---|
| 1. 57 | 43. 7 |
| 2. 144 | 44. 25 |
| 3. 76 | 45. $5 + 77 = 82$ |
| 4. 69 | 46. $\frac{3}{4}$ |
| 5. 98 | 47. 12 |
| 6. 56 | 48. 6 |
| 7. 156 | 49. 0 |
| 8. 154 | 50. 206.9 |
| 9. 162 | 51. 64 |
| 10. 126 | 52. 4 |
| 11. 16 | 53. 5, 2 |
| 12. 256 | $400 + (43 \times 3) = 529$ |
| 13. 25 | 54. 5, 7 |
| 14. 125 | $400 + 44 \times 4 = 576$ |
| 15. 9 | 55. 6, 2 |
| 16. 0.512 | $400 + 45 \times 5 = 625$ |
| 17. 0.008 | 56. 6, 7 |
| 18. 4096 | $400 + 46 \times 6 = 676$ |
| 19. 0.09 | 57. 7, 2 |
| 20. 0.64 | $400 + 47 \times 7 = 729$ |
| 21. 609 | $30 \times 24 + 9 = 729$ |
| 22. 4209 | 58. 7, 8 |
| 23. 1216 | $400 + 48 \times 8 = 784$ |
| 24. 1225 | $30 \times 26 + 4 = 784$ |
| 25. 1224 | 59. 7, 8 |
| 26. 4224 | $30 \times 28 + 1 = 841$ |
| 27. 616 | 60. 72 |
| 28. 624 | 61. 1.4 |
| 29. 621 | 62. .01 |
| 30. 1221 | 63. .06 |
| 31. 2 | 64. 16 |
| 32. 4 | 65. 1387 |
| 33. 6 | 66. $1\frac{3}{4}$ |
| 34. 9 | $105 \text{ min} = 1 \text{ hr and } 45 \text{ min} = 1\frac{3}{4} \text{ hr.}$ |
| 35. 2 | 67. $16^2 \times 2^3$ |
| 36. 5 | $= 2^8 \times 2^3$ |
| 37. 8 | $= 2^{11}$ |
| 38. 3, 2 | 68. 400 |
| 39. 0.000027 | 69. 15 |
| 40. 78 | 70. 1 |
| 41. 0.15 | 71. $2^5 = 32$ |
| 42. 200 | 72. $(100 - 1) \times 998$ |
| | $= 99800 - 998$ |
| | $= 98802$ |

GT MS (CogAT Numbers) (Fall, 2019) Issue 2

- $99 \times (1000 - 2)$
 $= 99000 - 200 + 2$
 $= 98802$
73. 0.008
74. 0.125
75. 3125
76. 16
77. 0.04
78. 2500
79. 39
80. $20 \div \frac{2}{5} = 50$
81. 0.875
82. 0.3
83. 55
84. $\frac{1}{20}$
85. $.4 \times 250 = 100$
86. $5 \div 20 = 0.25 = 25\%$
87. $16^2 (16 - 1) = 256 \times 15 = 128 \times 30 = 3840$
88. 11
89. .1111
90. $12^{\frac{6+4+3}{12}} = 13^{\frac{1}{12}}$
91. $\frac{2}{3}$
92. $\frac{3}{5}$
93. $\frac{4}{5}$
94. $\frac{5}{4}$
95. $\frac{4}{7}$
96. $\frac{6}{5}$
97. 0.005
98. 2.5
99. 4
100. D
With unknown length of time, we cannot determine the distance
101. B
102. C
 $8 \times 7.5 = 7\frac{1}{2} \times 8..$
103. A
104. A
105. A
 $(-\frac{1}{2})^3 = -\frac{1}{8} < (-\frac{1}{3})^2 = \frac{1}{9}$
106. C
107. C
108. B
 $40 \times \frac{3}{4} = 30 > 42 \times \frac{2}{3} = 28$
109. C
110. B
111. A
112. A
 $\frac{1}{3} - \frac{1}{4} > 0$
 $\frac{1}{6} - \frac{1}{5} < 0$
 So,
 $\frac{1}{3} - \frac{1}{4} > \frac{1}{6} - \frac{1}{5}$
 $\frac{1}{3} + \frac{1}{5} > \frac{1}{4} + \frac{1}{6}$
113. C
114. C
115. A
116. A
117. A
 $\angle ADC = 50^\circ$
 $\angle CAD = 60^\circ$
118. B
119. A
120. $\frac{4}{3} - \frac{3}{4} = 7/12$
121. $5 \ 3\frac{4}{5} = 1\frac{1}{5}$
122. $\frac{5}{3} \div 1\frac{2}{3} = 1$
123. $\frac{1}{2} \times 380 = 190$
124. $50 + 99 + 74 = 223$
125. $100.2 - 46.2 = 54$
126. $136 - 89 = 47$
127. $112 - 95 = 17$
128. $20 + 11 + 49 = 80$
129. $48 + 366 + 9.4 = 423.4$
130. $37.8 + 51 + 42.6 = 131.4$
131. $59 + 61 + 83 = 203$
132. $90 - 43.2 - 11.4 = 35.4$
133. $69.7 - 59 - 8.7 = 2$
134. $61.8 - 15.6 = 46.2$
135. $50 \div 2 = 25$
136. $192 \div 4 = 48$
137. $216 \div 3 = 72$
138. $288 \div 4 = 72$
139. $\square = 7$
140. $\square = 25$
141. $\square = 25$
142. $\square = 8$
143. $\square = 9$
144. $\square = 5$
145. $\square = 3$
146. $\square = 7$
147. $\square = 39$
148. $\square = 2.7$
149. $\square = 0.9$

Answer Key

1. 2
 2. 2
 3. .000008
 4. .014
 5. .08
 6. 0.162
 7. -6.26
 8. $\frac{1}{5}$
 9. 6
 10. 250%
 11. $240 \div 6 = 40$
 12. 182
 13. 9,000
 14. 44%
 15. 3087
 16. 1,000
 17. 13.64
 18. 0.07
 19. 25%
 20. 47.3
 21. $122.\overline{2}\%$
 22. 18 has factors: {1, 2, 3, 6, 9, 18}.
24 has factors : {1, 2, 3, 4, 6, 12, 24}.
Therefore, the largest common factor of 18 and 24 is 6.
Alternative method:
Use common division as below. Both 2 and 3 are circled since they are common factors.
- | | |
|--|---|
| <p>step 1.</p> $\begin{array}{r} 2 \overline{) 18, 24} \\ 9, 12 \end{array}$ | <p>step 2.</p> $\begin{array}{r} 2 \overline{) 18, 24} \\ 3 \overline{) 9, 12} \\ 3, 4 \end{array}$ |
|--|---|
- Therefore, the largest common factor is $2 \times 3 = 6$.
The above alternative method is recommended for tons of reasons.
23. 5.0
 24. 2.03
 25. 4.6
 26. $8\frac{1}{12}$
 27. 5
 28. $6\frac{1}{4}$
 29. 50
 30. 2.5
 31. 8
 32. 24
 33. -8
 34. 9
 35. $10 \times 16 + 9 = 169$
 36. $10 \times 14 + 4 = 144$
 37. $10 \times 20 + 25 = 225$
 38. $40(42) + 1 = 1681$
 39. $20 \times 22 + 1 = 441$
 40. $30 \times 36 + 9 = 1089$
 41. $20 \times 24 + 4 = 484$
 42. $20 \times 28 + 16 = 576$
 43. $1 - 62\% = 38\%$
 44. $6 \times 3 = 18$
 45. $26,000 \div 40,000 = 26 \div 40 = 0.65$
 $1 - 0.65 = 0.35 = 35\%$
 46. $45 \div 75 = 3 \div 5 = 0.6 = 60\%$
 47. $1 - 75\% = 25\% = \frac{1}{4}$ (loss)
 $\frac{1}{4} \times 28 = 7$ games
 48. $0.15 \times 660 = \$99.00$
 49. $34 \div 85 = 0.4 = 40\%$
 50. $90 \times 20\% = 18$
 $90 + 18 = 108$
 51. $108 - 96 = 12$
 $12 \div 96 = \frac{1}{8} = 12.5\%$
 52. $30 - 24 = 6$
 $6 \div 24 = .25 = 25\%$
 53. $\frac{120}{150} = \frac{12}{15} = \frac{4}{5} = 0.8 = 80\%$
 54. $1000/5000 = 20\%$
 55. $15\% = 0.15$
 $620 \times 0.15 = \$93.00$
 56. $16 - 5 - 1 = 10$
 $10 \div 16 = 5 \div 8 = 62.5\%$
 57. $180 \div 300 = 0.6 = 60\%$
 58. $1 - 42\% - 33\% = 25\%$
 59. $\frac{2}{5} = 0.4 = 40\%$
 60. A quart is $\frac{1}{4} = 25\%$ of a gallon.
 61. A gallon = 4 quarts = 400% of a quart.
 62. $\frac{1}{4} = 0.25 = 25\%$
 63. $3 \times 65 = 195$ km
 64. $264 \div 12 = 22$ (mi per gal)
 $22 \times 15 = 330$ mi

GT MS (CogAT Numbers) (Fall, 2019) Issue 3

65. $16 \div 2 \times 23 = 184$
66. $\frac{10}{8} = \frac{5}{4} = 1\frac{1}{4}$ hr
 $\frac{10}{20} = \frac{1}{2}$ hr
 $1\frac{1}{4} + \frac{1}{2} = 1\frac{3}{4}$ hr
67. $35071 - 34746 = 325$ (distance)
 $325 \div 5 = 65$ mph
68. $290 \div 50 = 5.8$ hours = 5 hr 48 min
69. 1 hour 20 min = $1\frac{1}{3}$ hr
 $30 \times 1\frac{1}{3} = 40$ miles
70. $\frac{2700}{4.5} = 600$ mph
71. 1 sec = $\frac{1}{3600}$ hr
 $45 \times \frac{1}{3600} = \frac{1}{80}$ mi = $\frac{1}{80} \times 5280$ ft = 66 feet
72. (a) $2 \times 55 = 110$ mi
(b) $\frac{\text{distance}}{\text{speed}} = \frac{330}{55} = \frac{30}{5} = 6$ hr
73. 2 hr 30 min = $2\frac{1}{2}$ hr
 $50 \times 2\frac{1}{2} = 125$ mi
74. (a) $12 \times 2 = 24$ km
(b) $54 \div 12 = 9 \div 2 = 4.5$ hr or 4 hr 30 min
75. $6 \times 25 = 150$ mi
76. 880 km
77. 14 hr
78. $3 \times 50 = 150$ mi
79. $120 \div 60 = 2$ hr
80. $250 \div 50 = 5$ hr
81. $14 \div 4 = 3.5$ (hr)
9:00 A.M. + 3:30 = 12:30 P.M.
82. $5 \times 50 = 250$ mi

Answer Key

1. .1111
2. 2
3. 1
4. .12345
5. 126.5
6. $\frac{7}{12}$
7. .0012
8. $.125 + 0.1111\dots = .236\bar{1}$
9. .1
10. $196 + 2.8 + .01 = 198.81$
11. 0.1
12. 1.5
13. $3.5 + 4.333\dots + 5.25 = 13.08\bar{3}$
14. 4
15. 20
16. $12 + 2\sqrt{2}$
17. 5
18. $180 \times (1 - \frac{2}{9}) = 108$
19. 10
20. $\frac{3}{4}$
21. 0.5
22. 4, 12, 9
23. 16, -40, 25
24. 1, 4, 9, 4, 12, 6
25. $\sqrt{10202-1} = 101$
 $\sqrt{101-1} = 10$
 $\sqrt{10-1} = 3$
26.

$$\begin{array}{r} 61 \\ \times 1 \\ \hline 61 \\ 626 \\ \times 6 \\ \hline 3756 \\ 6322 \\ \times 2 \\ \hline 12644 \\ 63242 \\ \times 2 \\ \hline 126484 \\ 632447 \\ \times 7 \\ \hline 4427129 \end{array}$$

$$\begin{array}{r} 3 \ . \ 1 \ 6 \ 2 \ 2 \ 7 \\ 1 \ 0 \\ \hline 9 \\ 1 \ 0 \ 0 \\ \hline 6 \ 1 \\ 3 \ 9 \ 0 \ 0 \\ \hline 3 \ 7 \ 5 \ 6 \\ 1 \ 4 \ 4 \ 0 \ 0 \\ \hline 1 \ 2 \ 6 \ 4 \ 4 \\ 1 \ 7 \ 5 \ 6 \ 0 \ 0 \\ \hline 1 \ 2 \ 6 \ 4 \ 8 \ 4 \\ 4 \ 9 \ 1 \ 1 \ 6 \ 0 \ 0 \\ \hline 4 \ 4 \ 2 \ 7 \ 1 \ 2 \ 9 \end{array}$$
- 27.
28. $\frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + 1}}}} = 0.625$
29. $\frac{1}{1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{1 + 1}}}} = 0.5$
30. 10, 35, 50, 24
31. 1, 4, 9, 4, 12, 6
32. 102.01
33. $5 + 77 = 82$
34. 6
35. 0
36. 64
37. $\frac{2}{5}$
38. $\Delta = 25$
39. $\frac{2}{3}$
40. 5
41. 13
42. 10
43. 39
44. 0.5
45. $\frac{2}{3}$
46. $\frac{2}{5}$
47. $\frac{3}{8}$
48. $\frac{4}{13}$
49. $\frac{5}{13}$
50. $\frac{5}{13}$
51. $\frac{3}{5}$
52. $\frac{4}{5}$
53. $\frac{5}{4}$
54. $\frac{4}{7}$
55. $\frac{6}{5}$
56. 0.005

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57. 2.5
58. 0.000027
59. 78
60. 0.15
61. 200
62. 7
63. 25
64. $\frac{3}{4}$
65. 12
66. 206.9
67. 9
68. 14
69. 20
70. 27
71. 35
72. $180 \times (1 - \frac{2}{9}) = 120$
73. $180 \times (1 - \frac{2}{7}) = 128\frac{4}{7}$
74. $180 \times (1 - \frac{2}{9}) = 135$
75. $180 \times (1 - \frac{2}{9}) = 140$
76. $180 \times (1 - \frac{2}{10}) = 144$
77. 6
78. 15
79. 45
80. 4
81. 5, 2
 $400 + (43 \times 3) = 529$
82. 5, 7
 $400 + 44 \times 4 = 576$
83. 6, 2
 $400 + 45 \times 5 = 625$
84. 6, 7
 $400 + 46 \times 6 = 676$
85. 7, 2
 $400 + 47 \times 7 = 729$
 $30 \times 24 + 9 = 729$
86. 7, 8
 $400 + 48 \times 8 = 784$
 $30 \times 26 + 4 = 784$
87. 7, 8
 $30 \times 28 + 1 = 841$
88. $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1+1}}}$ = 1.6
89. $1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{1-\frac{1}{2}}}}$ = 0.5
90. $2^{16} = 64 \times 1024 = 65536$
91. $600 \div 50 = 12$
 $600 \div 60 = 10$
 $10 + 12 = 22$ hr
92. $1\frac{1}{2} \times 10 = 15$ (miles)
 $15 / 4 = 3\frac{3}{4}$ hours
 $1\frac{1}{2} + 3\frac{3}{4} = 5\frac{1}{4}$ hours = 5 hr 15 min
93. 3 hr 24 min = $3\frac{2}{5}$ hr
 $35 \times 3\frac{2}{5} = 119$ (miles)
94. 3 hr 20 min = $3\frac{1}{3}$ hr
 $\frac{10}{3\frac{1}{3}} = 3$ mph
95. 1 hr 20 min = $1\frac{1}{3}$ hours
 $\frac{120}{1\frac{1}{3}} = \frac{120}{\frac{4}{3}} = 90$ mph
96. $48 + 60 = 108$ mi
 $2 + 3 = 5$ hr
 $108 \div 5 = 21.6 \div 10 = 21.6$ mph
97. 25 min = $\frac{25}{60}$ hr
 $\frac{175}{\frac{25}{60}} = \frac{175 \cdot 60}{25} = 7 \times 60 = 420$ mph
98. 20 min = $\frac{1}{3}$ hour
 $\frac{1}{3} \times 45 = 15$ mi
99. 3 hr 20 min = $3\frac{1}{3}$ hr
 $2\frac{1}{3} \times 60 = 140$ mi
100. $11:00 - 7:00 = 4$ hr
 $53 \div 4 = 13\frac{1}{4}$ mph
101. $2 \times 180 = 360$ mi
 $\frac{360}{5} = 72$ mph
102. $240 \div 60 = 4$ hr
103. $4 - 1 = 3$ hr
104. $240 \div 3 = 80$ mph
105. $312 \div 48 = 6.5 = 6$ hr and 30 min
106. $9:40 + 6:30 = 16:10 = 4:10$ P.M.
107. $4:10 - 3:45 = 25$ min (late)
108. 20 min = $\frac{1}{3}$ hr
 $\frac{15}{\frac{1}{3}} = 45$ mph
109. 10 min = $\frac{1}{6}$ hr
speed = $\frac{\text{distance}}{\text{time}} = \frac{80}{\frac{1}{6}} = 480$ mph
110. $8 \text{ m/sec } (= 100 \div 12.5)$

Answer Key

- | | | |
|----------------------|-----------------------|--------------------------|
| 1. (B) amateur | 43. (A) forbear | 85. (E) irreligious |
| 2. (C) ambush | 44. (B) incapacitate | 86. (J) regrettably |
| 3. (A) abhorrence | 45. (D) innovative | 87. (G) mosaic |
| 4. (D) anarchy | 46. (A) forbear | 88. (B) incapacitate |
| 5. (E) assassinate | 47. (C) informal | 89. (H) opulent |
| 6. (A) abhorrence | 48. (D) Innovative | 90. (A) forbear |
| 7. (E) assassinate | 49. (E) irreligious | 91. C |
| 8. (C) ambushed | 50. (B) incapacitated | deplete means to reduce |
| 9. (B) Amateur | 51. (A) maudlin | or deprive or something |
| 10. (D) anarchy | 52. (B) mosaic | essential; exhaust means |
| 11. (B) avail | 53. (E) regrettably | to empty completely |
| 12. (D) botanical | 54. (C) opulent | 92. A |
| 13. (A) assimilate | 55. (D) progeny | voluntary means done |
| 14. (C) blare | 56. (E) Regrettably | by one's own will, or |
| 15. (E) cereal | 57. (D) progeny | willing |
| 16. (C) blare | 58. (B) mosaic | 93. B |
| 17. (E) cereal | 59. (C) opulently | to refute means to |
| 18. (A) assimilate | 60. (A) maudlin | prove wrong, or to deny |
| 19. (D) botanical | 61. (E) assassinate | the truth of |
| 20. (B) availed | 62. (H) blare | 94. D |
| 21. (A) chasm | 63. (I) botanical | to cheat means to |
| 22. (E) debris | 64. (F) assimilate | influence by means of |
| 23. (B) condign | 65. (J) cereal | trickery, or to defraud |
| 24. (D) contestant | 66. (A) abhorrence | 95. C |
| 25. (C) conservation | 67. (G) avail | miserable means in a |
| 26. (A) chasm | 68. (B) amateur | state of distress or |
| 27. (E) debris | 69. (D) anarchy | unhappiness |
| 28. (D) contestants | 70. (C) ambush | 96. A |
| 29. (B) condign | 71. (J) engrossed | vintage means of old |
| 30. (C) conservation | 72. (A) chasm | and enduring interest, |
| 31. (C) devise | 73. (D) contestant | or classic |
| 32. (A) deplore | 74. (I) embargo | 97. B |
| 33. (D) embargo | 75. (F) deplore | tart means pleasantly |
| 34. (E) engrossed | 76. (E) debris | sharp or acid to the |
| 35. (B) devastate | 77. (G) devastate | taste |
| 36. (D) embargo | 78. (B) condign | 98. B |
| 37. (A) deplore | 79. (C) conservation | to corner means to |
| 38. (E) engrossed | 80. (H) devise | drive into a corner, or |
| 39. (C) devising | 81. (I) progeny | to trap |
| 40. (B) devastated | 82. (F) maudlin | 99. A |
| 41. (E) irreligious | 83. (C) informal | one meaning of zest is |
| 42. (C) informal | 84. (D) innovative | |

- keen enjoyment, or
gusto
100. D
to haggle means to
negotiate over terms or
price, or to bargain
101. A
to impel means to drive
forward using strong
moral pressure, or to
force
102. C
a throng is a large
number of assembled
people, or a mass
103. C
imperial means befitting
or suggesting an
emperor; regal means
befitting or suggesting a
king
104. B
to diffuse means to
break up or spread out,
or to scatter
105. D
to hinder means to hold
back; one meaning of to
check means to slow or
bring to a stop
106. A
latent means capable of
becoming but not
currently visible, or
dormant
107. C
wretched means
extremely distressed, or
miserable
108. D
irksome means tedious
or annoying
109. B
to regulate means to
bring under the control
of law; to police means
to control or keep order
110. A
to warrant means to
serve as adequate
ground or reason, or to
justify
111. C
to protract means to
prolong in time or
space, or to delay
112. B
lax means in a relaxed
state, or slack
113. A
rigor means severity of
life, or austerity
114. D
discrete means
individually distinct
115. C
lissome means supple or
flexible
116. A
to misprize means to
hold in contempt, or to
despise
117. C
to impugn means to
attack verbally as false
or lacking integrity; to
assail means to attack
118. D
to supervene means to
follow as an unexpected
development
119. A
exigent means
demanding immediate
attention, or urgent
120. D
fervid means ardent or
passionate
121. B
ersatz means a usually
artificial or inferior
substitute
122. B
redolent means
aromatic or full of a
specific scent, or
odorous
123. D
turpitude means
wickedness, or depravity
124. B
propinquity means
nearness in place or
time
125. C
vociferous means loud
and insistent, often in
presentation of
demands or requests;
strident also means loud
and insistent
126. B
127. B
128. C
129. C
130. D
131. A
132. C
133. C
134. B
135. D
136. C
137. D
138. A
139. B
140. B
141. C
142. A
143. B
144. D
145. B
146. B
147. C
148. C
149. B
150. B
151. B
152. B
153. A
154. D
155. B

- 156. B
- 157. D
- 158. B
- 159. C
- 160. A
- 161. C
- 162. D
- 163. C
- 164. B
- 165. B
- 166. syn key: C E A D B
 ant key: C B D A E
- 167. syn key: E C D B A
 ant key: C A D E B
- 168. syn key: A D B E C
 ant key: C A D B E
- 169. syn key: C E A D B
 ant key: D E B C A

Answer Key

1. 24
2. $9^6 = 3^{12}$
3. .1234
4. .54321
5. .54321
6. $\frac{3}{19}$
7. -.0012
8.
$$\begin{array}{r} 1.111,111 \\ +1.010,101 \\ +1.001,001 \\ \hline =3.122,213 \end{array}$$
9. $0.\overline{037} + 0.25$
 $= 0.28\overline{703}$
10. 1,111,111,101
11. 8,888,888,889
12. 111,111,111
13. $0.\overline{012345679}$
14. 60
15. 9
16. 4
17. $\frac{2}{3}$
18. -2
19. 9
20. 8
21. 0.1
22. 20
23. 25
24. 80
25. 0.3
26. 3
27. -1
28. 20
29. -3
30. -10
31. 0.2
32. $\frac{4}{9}$
33. $\frac{6}{11}$
34. 4
35. 5
36. $\frac{2}{3}$
37. $\frac{5}{4}$
38. $\frac{5}{2}$
39. $-\frac{1}{6}$
40. 55
41. 5050
42. $60 \times 103 = 6180$
43. 110
44. $51 \times 25 = 1275$
45. $50 \times 81 = 4050$
46. $50 \times 21 = 1050$
47. $101 \times 67 = 6767$
48. $21.5 \times 20 = 430$
49. $1515 \div 15 = 101$
 $101 + 2 \times 7 = 115$
50. $\frac{19-5}{10-3} = 2$
 $2 \times (20 - 10) + 19 = 39$
51. 0.005
52. $\frac{14}{25} = \frac{56}{100} = 56\%$
53. 1.21
54. 14400
55. $\frac{169}{9} = 18\frac{7}{9}$
56. 576
57. 625
58. $1.3^2 = 1.69$
59. $5\sqrt{2}$
60. $2 - .4 + 1.8 = 3.4$
61. $1\frac{2}{3}$
62. $1 + \frac{1}{1\frac{2}{3}} = 1\frac{3}{5}$
63. $\sqrt{5+\frac{4}{9}} = \sqrt{\frac{49}{9}} = \frac{7}{3} = 2\frac{1}{3}$
64. $\frac{1}{4}$
65. $\frac{1}{40}$
66. $\frac{4.5}{2.88} \times \frac{16}{3} = \frac{1.5}{2.88} \times 16$
 $= \frac{15}{28.8} \times 16$
 $= \frac{15}{1.8} = \frac{75}{9} = 25$
67. $\frac{8}{3} \div \frac{15}{4} \div \frac{51}{10} = \frac{8 \times 4 \times 10}{3 \times 15 \times 51}$
 $= \frac{64}{459}$
68. $8,000,000 \times 0.35$
 $= 80000 \times 35$
 $= 2,800,000$
69. $30 \times 1.2 = \$36$

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70. $30 \times 1.2 \times 1.2 = \43.20
71. $8\%(12000) = 8 \times 120 = 960$ (gain)
 $15\%(7200) = 15 \times 72 = 1080$ (loss)
 $1080 - 960 = \$120$ (loss)
72. $(60 - 48) \div 60 = .2 = 20\%$
73. $\$12 \times 20\% =$
 $\$12 \times 0.2 = \2.40
 $\$12 + \$2.40 = \$14.40$
74. $1 - 40\% = 60\%$ (spending)
 $\$950 \times 60\% = \570 (expenditure).
75. 25 %
76. tax = $300 \times 5\% = 15$
 $300 + 15 = 315$
 $315 \times 2 = 630$
77. 176 stones
78. $75\% \times 12 = \frac{3}{4} \times 12 = 9$ oz
79. $126 \div 180 = .70$
 $1 - 0.7 = 0.3 = 30\%$
80. $360 \div \frac{3}{4} = 480$
81. $84 - 70 = 14$
 $14 \div 70 = 0.2 = 20\%$
82. $1 - 20\% = 80\% = 0.8$ (after discount)
 $350 \times 0.8 = \$280.00$
83. $1 + 4\% = 1.04$ (after increase)
 $600 \times 1.04 = 624$
84. $40 - 32 = 8$ (discount)
 $8 \div 40 = .20 = 20\%$
85. $60 \times 20\%$
 $= 60 \times 0.2$
 $= \$12.00$
86. $1 - 20\% = 0.8$
 $60 \times 0.8 = \$48.00$
87. $425 - 224 - 116 = 85$
 $85 \div 425 = 1 \div 5 = 0.2 = 20\%$
88. $1200/500 = 2.4$ hours = 2 hr and 24 min
89. $1890 \div 3.5 = 540$ mph
90. $540 \div 60 = 9$ miles per minute
91. $\frac{18}{40} = 0.45$ hour = 27 min
92. $240 \div 60 = 4$
 $4 - 1 = 3$ hr (expected time)
 $240 \div 3 = 80$ mph
93. 3 hr 20 min = $3\frac{1}{3}$ hr
 $3\frac{1}{3} \times 60 = 200$ mi
94. $20 \div 10 = 2$ hours
95. $4:30$ P.M. - $10:00 - 1 = 5:30 = 5.5$ hr
 $5.5 \times 50 = 275$ mi

Answer Key

- | | | |
|--------------------------|--------------------------|------------------------|
| 1. (B) antiseptic | 43. (A) literally | 85. (E) perish |
| 2. (C) attest | 44. (B) manifestation | 86. (J) render |
| 3. (A) adieu | 45. (D) molt | 87. (G) premeditate |
| 4. (D) augmentation | 46. (A) literal | 88. (B) manifestation |
| 5. (E) chaff | 47. (C) misunderstand | 89. (H) quarantine |
| 6. (A) adieu | 48. (D) Molten | 90. (A) literally |
| 7. (E) chaff | 49. (E) perished | 91. syn key: C B A E D |
| 8. (C) attests | 50. (B) manifestation | ant key: C E D A B |
| 9. (B) antiseptic | 51. (A) preceptor | 92. syn key: C B E A D |
| 10. (D) augmentation | 52. (B) premeditate | ant key: A E B D C |
| 11. (B) condolence | 53. (E) render | 93. syn key: D E B A C |
| 12. (D) disfavor | 54. (C) quarantine | ant key: D C E A B |
| 13. (A) compensate | 55. (D) remedial | 94. syn key: E A B D C |
| 14. (C) degrade | 56. (E) rendered | ant key: D A E B C |
| 15. (E) engender | 57. (D) remedial | 95. B |
| 16. (C) degraded | 58. (B) premeditated | 96. C |
| 17. (E) engenders | 59. (C) quarantine | 97. D |
| 18. (A) compensated | 60. (A) preceptor | 98. A |
| 19. (D) disfavor | 61. (E) chaff | 99. A |
| 20. (B) condolences | 62. (H) degrade | 100. B |
| 21. (A) entice | 63. (I) disfavor | 101. A |
| 22. (E) foolhardy | 64. (F) compensate | 102. A |
| 23. (B) exile | 65. (J) engender | 103. D |
| 24. (D) fell | 66. (A) adieu | 104. D |
| 25. (C) expediency | 67. (G) condolence | 105. B |
| 26. (A) entice | 68. (B) antiseptic | 106. C |
| 27. (E) foolhardy | 69. (D) augmentation | 107. B |
| 28. (D) felled | 70. (C) attest | 108. B |
| 29. (B) exile | 71. (J) incomprehensible | 109. D |
| 30. (C) expediency | 72. (A) entice | 110. C |
| 31. (C) icon | 73. (D) fell | 111. B |
| 32. (A) gambit | 74. (I) implication | 112. C |
| 33. (D) implication | 75. (F) gambit | 113. B |
| 34. (E) incomprehensible | 76. (E) foolhardy | 114. B |
| 35. (B) geniality | 77. (G) geniality | 115. A |
| 36. (D) implications | 78. (B) exile | 116. A |
| 37. (A) gambit | 79. (C) expediency | 117. D |
| 38. (E) incomprehensible | 80. (H) icon | 118. D |
| 39. (C) icons | 81. (I) remedial | 119. A |
| 40. (B) geniality | 82. (F) preceptor | 120. B |
| 41. (E) perish | 83. (C) misunderstand | 121. B |
| 42. (C) misunderstand | 84. (D) molt | 122. D |

- 123. A
- 124. A
- 125. D
- 126. D
- 127. D
- 128. C
- 129. C
- 130. B
- 131. A
- 132. B
- 133. B
- 134. A

Answer Key

1. 750
2. -2
3. .00088
4. .000008
5. .1
6. 0.729
7. $1.7 \times .014 = .0238$
8. $13.2 + 25.07 \times 6 = 163.62$
9. -90
10. $8 (= 20\% \times 40 = 0.2 \times 40)$
11. $25 \div 50 = .5$
12. 30
13. 15000
14. 2
15. $\frac{3}{4}$
16. 20
17. 120
18. $21 = .70 \times 30$
19. 11.42
20. 25
21. $125\% = 1\frac{1}{4}$
22. 12
23. $\frac{60-30+20-15+12}{60} = \frac{47}{60}$
24. $1\frac{2}{3}$
25. 25
26. $\frac{2}{3}$
27. $1\frac{1}{5}$
28. 25%
29. 20
30. $72 \div 120 = .6 = 60\%$
31. 6.25
32. 0.0289
33. 3.24
34. 3.61
35. $\frac{\frac{25}{12}}{\frac{625}{24 \times 7}} = \frac{14}{25}$
36. $2 \times 5 = 10$
 $740 \square$
 $- 10$
 $= 739 \square$
 $\square = \boxed{2 \text{ or } 9}$
37. $1 + 50\% = 1.5$ (including profit)
 $4 \times 1.5 = \$6$
38. $25\% = 0.25 = \frac{1}{4}$
 $1 - \frac{1}{4} = \frac{3}{4}$
 $24 \times \frac{3}{4} = 18 \text{ hr}$
39. $\frac{50}{200} = \frac{1}{4} = 0.25 = 25\%$
40. $14.49 - 0.05 = 14.44$ seconds
41. Tax Rate $\times$ Total Price = Tax
Let x be the cost of the table. So, we can set up an equation as below.
 $0.02x = 27$
 $x = 27/0.02 = \$1350.$
42. $1 - 25\% = 75 = \frac{3}{4}$ (after discount)
 $48 \times \frac{3}{4} = \36
43. $1 + 20\% = 1.2$
 $60 \times 1.2 = \$72.00$
44. $250 - 160 = 90$
 $90 \div 250 = 9 \div 25 = 36 \div 100 = 36\%$
45. $1 + 20\% = 1.2$
 $5000 \times 1.2 = 6000$
or
 $6000 \div 1.2 = 5000$
46. $1 + 80\% = 1.8$ (including profit)
 $25 \times 1.8 = \$45.00$
47. $52 - 40 = 12$ pounds (over-weight)
 $12 \times (1\% \times 200) = 12 \times 2 = \underline{\$24}$
48. $2000 \times 25\% = 2000 \times 0.25 = 500$
49. $1 - 25\% = 1 - \frac{1}{4} = \frac{3}{4}$
 $40 \times \frac{3}{4} = \30.00
50. $800 \times 60\% \times 30\%$
 $= 800 \times 0.6 \times 0.3$
 $= 8 \times 6 \times 3$
 $= \$144$
51. $1 - 20\% = 0.8$
 $630 \times 0.8 = 504$
52. $36.75 - 35 = 1.75$ (tax)
 $1.75 \div 35 = 0.05 = 5\%$ (tax rate)
53. $15 \times (1 - 15\%) = 15 \times 0.85 = \12.75
54. $880 \times 0.7 = 616$
55. $28 \times (1 - 35\%)$
 $= 28 \times 0.65$
 $= \$18.20$
 $2 \times 18.2 = \underline{\$36.40}$
56. $10\% = 0.1$
 $0.1 \times 3 = 0.3$
 $27 \times 0.3 = 8.1$
 $27 + 8.1 = 35.1$ grams

GT MS (CogAT Numbers) (Fall, 2019) Issue 6

57. $6\frac{1}{2} \times 24 = 144 + 12 = 156$ mi
58. $2700 \div 4 = 675$ mph
59. $56 \div 4 = 14$ mph
60. $120 \div 2 = 60$ mph
61. $15 \div 3 = 5$ hr
62. $8 \div 4 = 2$ hr to run work
 $8 \div 8 = 1$ hr to bike home
 $2 + 1 = 3$ hr
63. $135/30 = 4.5$ meters per second
64. $135/45 = 3$ meters per second
65. $\frac{\text{total distance}}{\text{total time}} = \frac{270}{45+30} = 3.6$ meters per second
66. $6 \times 2 = 12$ miles
67. $12 \div 3 = 4$ hr
 $6 + 4 = 10$ hr
68. $12 \times 2 = 24$ miles (total distance)
 $\frac{\text{total distance}}{\text{total time}} = \frac{24}{10} = 2.4$ mph
69. $8 \div 4 = 2$ hr
 $4 \div 8 = 0.5$ hr
 $2 + 0.5 = 2.5$ hr
 $8 + 4 = 12$ mi (total distance)
 $12 \div 2.5 = 4.8$ mph
- Caution: It would be wrong if you average the two speeds as below.
 $\frac{1}{2}(4 + 8) = 6$ mph
70. $AB = 2 \times 60 = 120$ mi
 $BC = 3 \times 80 = 240$ mi
Total distance = $120 + 240 = 360$ mi
Total time = $2 + 3 = 5$ hr
Average speed = $\frac{\text{Total distance}}{\text{Total time}}$
 $= \frac{360}{5} = 72$ mph
71. Let d (in miles) be the distance.
Then, we have
 $\frac{d}{4} + \frac{d}{3} = 3.5$
 $7d = 42$
 $d = 6$ mi (distance)
72. $75 \text{ min} = 1\frac{1}{4} \text{ hours}$
 $1\frac{1}{4} + 2 = 3\frac{1}{4}$
 $1\frac{1}{4} \times 52 = 65$ (miles)
 $65 \times 2 = 130$ (total distance)
 $130 \div 3\frac{1}{4} = 130 \times \frac{4}{13} = 40$ mph
73. $\frac{111-93}{12} = 1.5$ hrs (of driving)
 $\frac{111}{1.5} = 74$ (mph)
 $\frac{93}{1.5} = 62$ (mph)
74. 60
75. -11
76. .004
77. .0018
78. .012
79. 0.3
80. 5.14
81. 11.65
82. 58
83. 8
 $20\% \times 40 = 0.2 \times 40 = 8$
84. .005
85. -6
86. 12
87. $4/10 = \frac{2}{5} = 0.4 = 40\%$
88. 500
89. $50\% \times \square = 10$
 $0.5 \times \square = 10$
 $\square = 20$
90. 1,200
91. 7
92. 8.78
93. 55.8
94. $6/29$
95. 7

Answer Key

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

42. B
43. D
44. A
45. B
46. A
47. A
48. D
49. D
50. C
51. C
52. B
53. D
54. B
55. D
56. C
57. C
58. A
59. A
60. B
61. syn key: E A C B D
ant key: E A B C D
62. syn key: E A D C B
ant key: B C A E D
63. syn key: D C A E B
ant key: B E A D C
64. syn key: D E A B C
ant key: D C E A B
65. A
66. D
67. D
68. B
69. C
70. D
71. B
72. B
73. C
74. C
75. B
76. D
77. B
78. B

79. C
80. D
81. A
82. B
83. A
84. C
85. B
86. C
87. D
88. D
89. D
90. D
91. C
92. D
93. A

Some related words
with mnemonic joy.
amalgam: an alloy of
mercury with another
metal or metals.
magma: molten mixture
from volcanic eruption

78. $\frac{40}{3}$
79. $\frac{2}{15}$
80. 5
81. $\frac{2}{9}$
82. $\frac{40}{9}$
83. $\frac{3}{2}$
84. $\frac{3}{10}$
85. $\frac{1}{30}$
86. $1 + \frac{1}{2 + \frac{1}{3 + \frac{1}{4}}} = 1 + \frac{1}{2 + \frac{1}{\frac{13}{4}}} = 1 + \frac{1}{2 + \frac{4}{13}} = 1 + \frac{1}{\frac{30}{13}} = 1 + \frac{13}{30} = 1\frac{13}{30}$
87. 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. $\frac{1 + \frac{1}{2} + \frac{1}{3}}{\frac{1}{2} - \frac{1}{3}} = \frac{\frac{6}{6} + \frac{3}{6} + \frac{2}{6}}{\frac{3}{6} - \frac{2}{6}} = \frac{(\frac{11}{6})}{(\frac{1}{6})} = \frac{11}{6} \times \frac{6}{1} = 11$
88. $\frac{21}{10}$
89. $\frac{2}{3}$
90. $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}} = 1 + \frac{1}{1 + \frac{1}{\frac{3}{2}}} = 1 + \frac{1}{1 + \frac{2}{3}} = 1 + \frac{1}{\frac{5}{3}} = 1 + \frac{3}{5} = 1\frac{3}{5}$
91. $\frac{3}{5}$
92. -1
93. $\frac{1}{4}$
94. $\frac{5}{3}$ or $1\frac{2}{3}$
95. (a) $1 + 3 = 4$
 $96 \div 4 = 24$
 (b) $24 + 3 \times 24 = 24 + 72 = 96$
96. (a) $1 + \frac{1}{3} = \frac{4}{3}$
 $96 \div \frac{4}{3} = 72$
 (b) $72 + \frac{1}{3} \times 72 = 72 + 24 = 96$
97. (a) $1 - \frac{1}{3} = \frac{2}{3}$
 $96 \div \frac{2}{3} = 144$
 (b) $144 - \frac{1}{3} \times 144 = 144 - 48 = 96$
98. $1 - 25\% = \frac{3}{4}$
 $60 \div \frac{3}{4} = 80$
99. dog: $2x$
 cat: x
 After 9 dogs were sold,
 $x = 2(2x - 9)$
 $x = 4x - 18$
 $3x = 18$
 $x = 6$
 There were 12 dogs and 6 cats originally.
100. A, B, C, E
101. A, B
102. (a) $2a$
 (b) $\frac{4}{5}x$ or $\frac{4x}{5}$
 (c) xy
 (d) $\frac{5x}{y}$
 (e) $-2x$
103. Assume they are x and $x + 1$. Thus,
 $5(x+1) - x = 57$
 $4x + 5 = 57$
 $x = 13$
 Thus, they are 13 and 14.
104. $8 - 3(2 + x) = x - 10$
 $4x = 12$
 $x = 3$
105. $3(x - 2) = 6 + x$
 $2x = 12$
 $x = 6$
106. $2x + 3x = x^2 + 6$
 $x^2 - 5x + 6 = 0$
 $(x - 2)(x - 3) = 0$
 $x = 2$ or 3
107. $a + 10 = 2(b + 10)$
108. k
109. b
110. y
111. h, w
112. $m + 3$
113. $\frac{1}{2}m$
114. $300a + 20a + a = 321a$
115. $\frac{1}{4} = \frac{4.5}{18}$
116. $\frac{4}{3}$ or $1\frac{1}{3}$
117. 50%
118. 120%
119. $20 \times 90\% = 18$
 or
 $18 \div 20 = \boxed{90\%}$
120. $26 \div 20 = 1.30 = 130\%$
121. Since $26 \div 20 = 1.30 = 130\%$
122. 25%
123. $8 \div 20 = 0.4 = 40\%$
124. 400%
125. $40 \div 30 = 1.33... = 133\frac{1}{3}\%$
126. $46 \div 40 = 1.15 = 115\%$
127. 20%
128. 32%
129. 400%
130. $20 \div 8 = 2.5 = 250\%$

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131. 25%

133. $35\% \times 80 = 0.35 \times 80 = 28$

132. 150%

134. $45\% = 0.45$

$1.5 \times 20 = 30$

$0.45 \times 20 = 9$

$1.5 = 150\%$

Answer Key

- | | | |
|-----------------|------------------------|------------------------|
| 1. dose | 43. D | 83. syn key: A E B D C |
| 2. threw | 44. B | ant key: A E B D C |
| 3. woman | 45. D | 84. syn key: C E B D A |
| 4. forward | 46. B | ant key: C E D B A |
| 5. horde | 47. B | |
| 6. besides | 48. A | |
| 7. Accept | 49. C | |
| 8. proscribe | 50. B | |
| 9. aloud | 51. B | |
| 10. too | 52. B | |
| 11. coarse | 53. C | |
| 12. complaisant | 54. A | |
| 13. all ready | 55. B | |
| 14. averse | 56. C | |
| 15. then | 57. D | |
| 16. already | 58. D | |
| 17. they're | 59. D | |
| 18. complacent | 60. B | |
| 19. except | 61. A | |
| 20. By | 62. B | |
| 21. ascent | 63. A | |
| 22. raise | 64. D | |
| 23. Complement | 65. D | |
| 24. Herd | 66. A | |
| 25. course | 67. D | |
| 26. by | 68. B | |
| 27. amoral | 69. D | |
| 28. flounder | 70. A | |
| 29. loose | 71. D | |
| 30. Breathe | 72. A | |
| 31. whom | 73. B | |
| 32. Whole | 74. D | |
| 33. past | 75. B | |
| 34. stationary | 76. C | |
| 35. bough | 77. C | |
| 36. women | 78. A | |
| 37. affects | 79. D | |
| 38. dessert | 80. C | |
| 39. principle | 81. syn key: D E B C A | |
| 40. climatic | ant key: E A B C D | |
| 41. A | 82. syn key: B E C A D | |
| 42. D | ant key: D A B C E | |

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79. $400 \times 60\% = 240$
80. $400 - 240 = 160$
81. $3600 \div 15\% = 24000$ (million)
82. $120 \times 1.5 = 180$
 $180 \times 0.08 = 14.4$ ounces
83. $900 \div 50000 = 1.8\%$ (tax rate)
 $80000 \times 1.8\% = 80 \times 1.8 = 8 \times 18 = \1440
84. $35 + 24 + 31 = 90$
 $90 \times 8\% = 90 \times 0.08 = 7.2$
 $90 + 7.2 = \$97.20$
85. $\frac{90-60}{90} = \frac{1}{3} = 0.333\ldots = 33\frac{1}{3}\%$
86. $80 \times 0.2 = \$16$
87. $80\% = 0.8$
 $0.8 \times 15 = 12$
or
 $12 \div 0.8 = 15$
88. $\frac{1}{3} = .3333\ldots = 33.3333\ldots\% = 33\frac{1}{3}\%$
89. $10\% = 0.1$
 $60 \times 0.1 = 6$
or
 $6 \div 0.1 = 60$ ft
90. $750 \times 20 \times 25\%$
 $= 750 \times 20 \times 0.25$
 $= 750 \times 5$
 $= \$3,750$
91. $7.2 \div 12 = 0.6$ (each before tax)
 $1 + 15\% = 1.15$
 $0.6 \times 1.15 = \$0.69$ (each after tax)
92. $48 - 32 = 16$
 $16 \div 32 = 50\%$
93. $6000 = 2000 + 4000$
 $2000 \times 3\% = 20 \times 3 = 60$
 $4000 \times 5\% = 40 \times 5 = 200$
 $60 + 200 = \$260$
94. (a) $600 \times 20\% = \$120$
(b) $600 + 120 = \$720$
95. $10 (= \frac{1}{4} \times 40)$
96. $\frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} \times \frac{6}{7} = \frac{3}{7}$
97. .0006
98. .0003
99. .014
100. 0.008
101. 0.68
102. 173.6
103. 675
104. 150
 $20\% \times \square = 30$
 $0.2 \times \square = 30$
 $\square = 150$
105. 184
106. False $-3 < -2$
107. $32 \div 4000 = .008$
108. $4.3 \times 5.6 = 24.08$
109. 4500000
110. $.5 \times \square = 9, \square = 18$
111. 15000000
112. 140,000
113. 0.02
114. -18
115. 5
116. 4
117. $1 + 5\% = 1.05$ (including tax)
 $8 \times 2.5 = 20$
 $20 \times 1.05 = \$21$
118. $60\% \times 55\%$
 $= 0.6 \times 0.55$
 $= 0.33$
 $= 33\%$
119. $660 \div 33\% = 2000$
120. $1 + 30\% = 1.3$
 $200 \times 1.3 = 260$ pounds
121. $1 - (58\% + 12\%) = 0.3$
 $80 \times 0.3 = 24$
or
 $24 \div 0.3 = 80$
122. $\frac{1}{3} = 33\frac{1}{3}\%$
123. $1 - 95\% = 5\% = 0.05$
 $0.05 \times 940 = 0.5 \times 94 = \frac{1}{2} \times 94 = 47$
124. $2750 - 350 = 2400$
 $2400 \div 12 = 200$ (dozen)
 $200 \times 0.7 = 140$
 $140 - 100 = +40.00$
125. $1 + 30\% = 1.3$
 $70 \times 1.3 = 91$
or
 $91 \div 1.3 = \$70.00$
126. $16.30 \times 500 = \$8,150$
127. $8150 \times 2\% = \$163$
128. $(16.30 \times 500) \times 2\%$
 $= 16.30 \times (500 \times 2\%)$
 $= 16.3 \times (5 \times 2)$
 $= 16.3 \times 10$
 $= \$163.00$
129. $2000 \times 0.8 = 1600$ (selling price)
 $1600 \times 0.05 = 80$ (tax)
 $1600 + 80 = \$1680$
130. $(90,000 \div 100) \times 0.40 = 360$
 $360 \times 5 = \$1800.00$
131. $18000 \div 180000 = 10\%$

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132. $180000 \times 25\% = 45000$

$18000 \div 45000 = 18 \div 45$

$= 2 \div 5 = 0.4 = 40\%$

133. $35\% \times 120 = 0.35 \times 120$

$= 3.5 \times 12 = 7 \times 6 = 42$

134. $1200 \times \frac{1}{4} = 300$

$300 \times 12\frac{1}{3}\% = 3 \times 12\frac{1}{3} = 36 + 1 = \37.00

135. $1 + 20\% = 1.2$

$20 \times 1.2 = \$24.00$

136. 20% = depreciation each year

$20\% \times 2 = 40\%$

$1 - 40\% = 60\%$

$4000 \times 60\% = \underline{\$2400}$

137. $1 - 20\% = 0.8$ (after loss)

$4,000 \times 0.8 = \$3,200$ (after the first year)

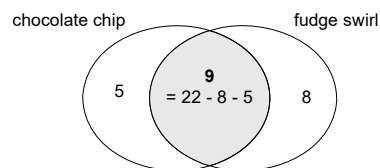
$3,200 \times 0.8 = \$2,560$ (after the second year)

Answer Key

- | | | |
|----------------|------------------------|------------------------|
| 1. wreathe | 43. B | 83. syn key: A D E B C |
| 2. too | 44. C | ant key: A E C D B |
| 3. loose | 45. A | 84. syn key: D A E C B |
| 4. allowed | 46. C | ant key: E A B D C |
| 5. break | 47. C | |
| 6. effect | 48. C | |
| 7. baited | 49. B | |
| 8. aural | 50. D | |
| 9. lose | 51. D | |
| 10. does | 52. A | |
| 11. imply | 53. D | |
| 12. principal | 54. B | |
| 13. cue | 55. A | |
| 14. infer | 56. B | |
| 15. hear | 57. C | |
| 16. course | 58. C | |
| 17. Whose | 59. C | |
| 18. Coarse | 60. C | |
| 19. pore | 61. A | |
| 20. draft | 62. A | |
| 21. currant | 63. D | |
| 22. storey | 64. B | |
| 23. Conscience | 65. D | |
| 24. edition | 66. A | |
| 25. broach | 67. C | |
| 26. grisly | 68. C | |
| 27. titivate | 69. A | |
| 28. Quiet | 70. D | |
| 29. allusion | 71. B | |
| 30. lay | 72. D | |
| 31. buy | 73. D | |
| 32. founder | 74. B | |
| 33. illicit | 75. D | |
| 34. bow | 76. A | |
| 35. hoard | 77. B | |
| 36. exercise | 78. D | |
| 37. flaunt | 79. B | |
| 38. current | 80. B | |
| 39. Whose | 81. syn key: C E A D B | |
| 40. exorcise | ant key: E D A C B | |
| 41. A | 82. syn key: C B A E D | |
| 42. C | ant key: D E B C A | |

Answer Key

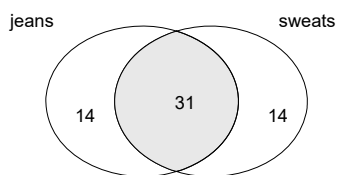
1. -9
2. -75
3. .00004
4. .04
5. -.18
6. $0.5 \div 0.75 = \frac{2}{3}$, and indeed $\frac{2}{3} \times 0.75 = 0.5$.
7. 93
8. 12
 $15\% \times 80 = 0.15 \times 80 = 12$
9. 1.23
10. 60,000
11. 36 ($25\% \times \square = 9 \Rightarrow \square = 36$)
12. 8.86
13. 198
14. $40/30 = \frac{4}{3} = 1\frac{1}{3}$
15. $1\frac{1}{5}$
16. 33
17. .09
18. 451
19. 400000
20. 1,800
21. {1, 2, 4, 5, 10, 20, 25, 50, 100}.
22. $\Delta = 38$
23. -32
24. $.0004 \times 10 = .004$
25. .7
26. .006
27. 39
28. $20 \div \frac{2}{5} = 50$
29. 2.1
30. 80
31. -.4
32. 300
33. 78
34. $\frac{1}{20}$
35. 304
36. $.4 \times 250 = 100$
37. $5 \div 20 = 0.25 = 25\%$
38. 388
39. 53
40. 1011
41. 98
42. 183
43. {1, 2, 4, 8, 16, 32, 64}.
44. $\Delta = 3$
45. 125
46. 92
47. 20%
48. 35
49. 80%
50. 10
51. 125%
52. 80
53. 200
54. $231 = 91\frac{20}{3}\% \times \square$
 $\square = \frac{23100 \times 3}{275} = \frac{23100 \times 3 \times 4}{275 \times 4} = \frac{23100 \times 12}{1100} = \underline{252}$
55. 1690000
56. 1.68
57. 252
58. 72200
59. 1960000
60. 0.0169
61. 0.0121
62. 72400
63. 4300
64. 0.04
65. 2250000
66. 2560000
67. 685
68. 569
69. 60500
70. 585
71. 0.0324
72. 740
73. 72500
74. 890
75. See the diagram below.



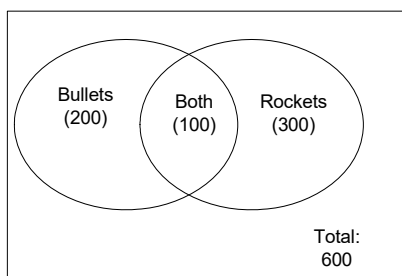
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76. $22 - 8 - 5 = 9$

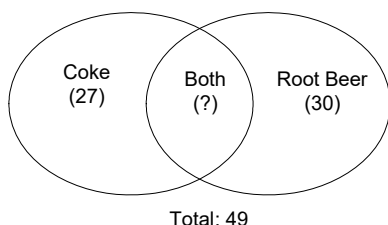
77. $\frac{1}{2}(59 - 31) = 14$



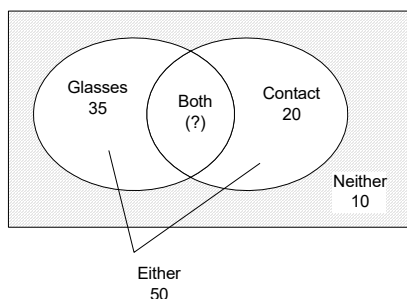
78. Bullets only: 100, Rockets only: 200.
Cheering either of Bullets or Rockets: 400.
Thus, there are $600 - 400 = 200$ people did not cheer either of them.



79. $27 + 30 - 49 = 8$



80. $60 - 10 = 50$ (either glasses or contact)
 $35 + 20 - 50 = 5$ (both)



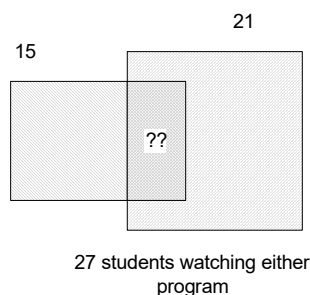
81. See the table below.

Total	30
Neither	$30 \times 10\% = 3$
Either	27

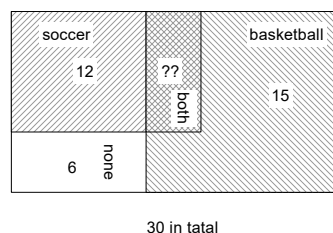
The number of students who watched either program should be $30 - 3 = 27$.

Disney Channel	$30 \times 70\% = 21$
Cartoon Network	$30 \times 50\% = 15$

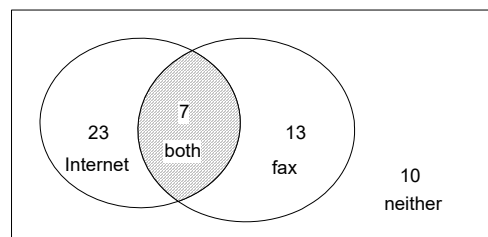
So, the number of students who watched both programs should be $21 + 15 - 27 = 9$. $9 \div 30 = 30\%$
(Look at the following Venn's diagram)



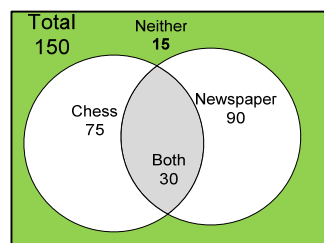
82. $30 - 6 = 24$
 $12 + 15 = 27$
 $27 - 24 = 3$ students



83. $30 + 20 - 7 = 43$ students with either Internet access or fax.
 $43 + 10 = 53$ (in debate team)

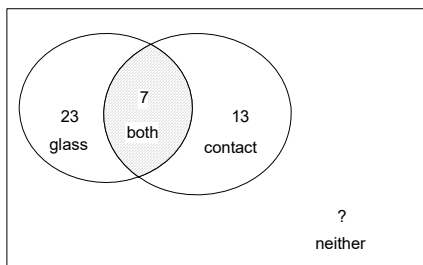


84. Chess club: $0.50 \times 150 = 75$
Newspaper: $0.60 \times 150 = 90$
 $90 + 75 - 30 = 135$ students who signed for either chess or newspaper.
 $150 - 135 = 15$ students did not sign up



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85. $30 - 7 = 23$ (glass only)
 $20 - 7 = 13$ (contact only)
 $23 + 7 + 13 = 43$ (either)
 $55 - 43 = 12$ (neither)

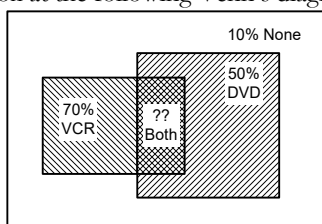


86. The solution is detailed below.

U	1	2	3	4	5	6	7	8	9	10	11	12
A	✓			✓				✓	✓	✓	✓	✓
B		✓								✓	✓	✓
C	✓	✓	✓			✓						✓

87. Since only 90% of the students watched TV, there should be $70\% + 50\% - 90\% = 30\%$ watched both.

(Look at the following Venn's diagram)



88. The speed of Betsey is $\frac{1}{4}$ and the speed of her mother is $\frac{1}{2}$, so their combined speed is $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$, at which the room can be finish cleaning within

$$\frac{1}{\frac{3}{4}} = \frac{4}{3} \text{ hours}$$

$$= 1\frac{1}{3} \text{ hours}$$

$$= 1 \text{ hr } 20 \text{ min}$$

89. $6 \times 3 = \text{the amount of work} = 2 \times \square$
 $\square = 9 \text{ days}$

90. $16 \times 4 \div 8 \div 2 = 4$

91. $6 \times 8 = 48 = 4 \text{ (hr)} \times 12$

92. $26 \times 40 = 1040$
 $1040 \div 20 = 52 \text{ mph}$

93. $26 \times 40 = 1040 \text{ person-days, or } 1040 \text{ people in } 1 \text{ day}$
 $1040 = 20 \times 52$
 $52 - 40 = 12 \text{ more people}$

94. $8 \times 5 = 40 \text{ (man-hours)}$
 $40 \div 10 = 4 \text{ hrs}$

95. $40 \times 12 = 480 \text{ person-days}$
 $480 \div 24 = 20 \text{ days}$
 $20 - 12 = 8 \text{ days}$

96. $2\frac{2}{3} + 3\frac{3}{4} - 5\frac{1}{10} = \frac{2}{3} + \frac{3}{4} - \frac{1}{10} = 1\frac{19}{60}$

97. $5 \times (\frac{1}{3} - \frac{1}{4} + \frac{1}{5}) - \frac{1}{6} = 5 \times \frac{17}{60} - \frac{1}{6} = \frac{15}{12} = 1\frac{1}{4}$

98. $\frac{36}{240} = \frac{3}{20}$

99. $\frac{1}{6}$

100. $\frac{1}{3} \times 60 = 20$

101. $\frac{2}{3} \times 60 = 40$

102. $1.6\% \times 700 = 0.016 \times 700 \text{ (or } 1.6 \times 7) = 11.2$

103. 35.6

104. $120\% \times 50 = 1.2 \times 50 = 60$

105. 5.25

106. $90 \times 15\% = 90 \times 0.15 = 13.5$

107. 120

108. $20\% \times 40 = 0.2 \times 40 = 8$

109. $20\% \times 50 = 0.2 \times 50 = 10$

110. $440 \times 25\% = 110$

111. 5.25

112. $43\% \times 60 = 25.8$

113. $80 \times 80\% = 64$

114. $140 \times 85\% = 119$

115. $\frac{47}{180}$

116. 47

tens digit	ones digit	sum
1	4	5
2	5	7
3	6	9
4	7	11☺

117. The sum of the length and width is 55 at any rate.

Assume the width is x centimeters, and the length is $2x + 10$. Thus, we have

$$x + (2x + 10) = 55$$

$$3x + 10 = 55$$

$$x = 15 \text{ (width)}$$

$$2 \times 15 + 10 = 40 \text{ cm (length)}$$

118. Assume the two consecutive numbers are x and $x + 1$. Thus,

$$x + 4(x + 1) = 39$$

$$5x + 4 = 39$$

$$5x = 35$$

$$x = 7$$

They are 7 and 8.

119. Let l be the length of the sandbox. Thus, the width is $\frac{2}{3}l$, and the perimeter is

$$2(l + \frac{2}{3}l) = \frac{10}{3}l$$

To find the dimensions, we need to solve the equation:

$$20 = \frac{10}{3}l$$

$$l = 6 \text{ (length)}$$

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$$10 - 6 = 4 \text{ (width)}$$

$$4 \times 6 = 24 \text{ ft}^2 \text{ (area)}$$

$$120. t = 1.05x$$

$$121. t = 1.05 \times 1200 = 1260$$

$$122. 2550 - 1800 = 750$$

$$750 \div 75 = 10 \text{ (encyclopedias)}$$

$$123. \text{ Let } x \text{ be his sales,}$$

$$8\%(x) = 0.08x = 336$$

$$x = \$4,200.00$$

$$124. (a) \frac{1}{5}b$$

$$(b) 5c$$

$$(c) 5c + c = 30$$

$$6c = 30$$

$$c = 5$$

$$b = 25$$

$$125. 10b + a$$

$$126. \text{ Let's assume it traveled } m \text{ miles that day, so the charge was } 60 + 0.2m. \text{ We have the following.}$$

$$100 = 60 + 0.2m$$

$$40 = 0.2m$$

$$m = 200 \text{ miles}$$

$$127. 4 \times 100 + 7 \times 20 = \$540$$

$$128. 30 \text{ adults and } 120 \text{ children}$$

Let's assume all the audience are children, then the total income must be $150 \times \$4 = \600 , which is \$90 less than it should be. Since there is a difference of \$3 between the two kinds of ticket. Thus, $90 \div 3 = 30$ (more adults). The answer of this problem is 30 adults and $150 - 30 = 120$ children.

$$129. \text{ Let } x \text{ be the original price, we have}$$

$$0.8x = 140$$

$$x = 140 \div 80\% = \$175.00$$

$$130. w = 5.75t$$

$$131. w = 5.75 \times 14 = \$80.5$$

$$132. 149.5 = 5.75t$$

$$t = 26$$

$$133. 63$$

original number	new number	difference
21	12	9
42	24	18
63	36	27 ☺

$$134. t = .08s$$

$$135. t = .08 \cdot \$875 = \$70.00$$

Answer Key

1. $(\frac{3}{4})^2 - (\frac{1}{2})^4 = \frac{9}{16} - \frac{1}{16} = \frac{1}{2}$
2. $56\frac{1}{6}$
3. .0001
4. .06
5. 31.5%
6. 0.162
7. 0.0024
8. 13.03
9. 22.2
10. 100
11. .5
12. 5.4
13. 122
14. $1\frac{1}{3} = 40/30 = \frac{4}{3}$
15. $1\frac{1}{5}$
16. $55\% \times 70 = 38.5$
17. $6400 \div .008 = 800000$
18. $72 \div 120 = .6 = 60\%$
19. 16,000
20. 18,000
21. {1, 2, 4, 5, 10, 20, 25, 50, 100}
22. 4
23. 0
24. .0021
25. -.001
26. .009
27. 78
28. 1
29. 15
30. 2000
31. 2200
32. 30
Since $66 \div 220\% = 66 \div 2.2 = 30$, and indeed
 $30 \times 220\% = 30 \times 2.2 = 66$.
33. 94
34. $\frac{3}{4}$
 $30/40 = \frac{3}{4}$ and indeed $30 \times \frac{3}{4} = 40$
35. $38 - 92 + 5 \times (97 - 76 + 9 \times 3) = 186$
36. 8,000
37. 12
38. 245
39. 31
40. 206.9
41. 1477
42. 815
43. {1, 2, 4, 8, 16, 32, 64}
44. $\Delta = 5$
45. 40%
46. 266
47. 270
48. 32%
49. 1300
50. 1400
51. 5.4
52. 81.6
53. $83\frac{1}{3}\%$
54. $66\frac{2}{3}\%$
55. 1.35
56. 801
57. 2890000
58. 3240000
59. 1154
60. 0.0256
61. 3610000
62. 7.73
63. 0.0576
64. 0.0361
65. 6.73
66. 4000000
67. 4410000
68. 4840000
69. $625 = 25^2$
70. $1681 = 41^2$
71. $3721 = 61^2$
72. $169 = 13^2$
73. $2500 = 50^2$
74. $7225 = 85^2$
75. 60
 $\frac{4}{5} \times 75 = 60$
76. $10\frac{1}{4}$
77. .006
78. .018
79. .12
80. False as they are equal.

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81. 5
82. 11.65
83. $\frac{8}{11}$
84. 150
85. 214
86. -6
87. .8
88. $\frac{-14}{5}$
89. 13500000
90. 60
91. 12,000
92. 14,000
93. 15.26
94. -3
95. 6
96. 30
97. $1 - 65\% = 35\% = 0.35$ (left)
 $420 \times 0.35 = 42 \times 3.5 = 21 \times 7 = \147
98. $2700 + 500 = 3200$
 $4000 - 3200 = 800$
 $\frac{800}{3200} = \frac{1}{4} = 25\%$
99. $45\% \div 3 = 15\%$
 $660 \times 15\% = \$99$
100. $30000 - 25000 = 5000$
 $5000 \div 25000 = 5 \div 25 = 1 \div 5 = 0.2 = 20\%$
101. $2,400 \div 60 = 40$
 $1 + 30\% = 1.3$ (including profit)
 $40 \times 1.3 = \$52$
102. $31.2 - 24 = 7.2$
 $7.2 \div 24 = 0.3 = 30\%$
103. $1 - 50\% - 35\% = 15\%$
 $120 \times 15\% = 18$
104. $50\% \times 120 \times 6 = 360$
 $35\% \times 120 \times 4 = 168$
 $360 + 168 = \$528$
105. $582 - 528 = \$54$
106. $54 \div 18 = \$3$
107. $1 - 20\% = 0.8$
 $4.5 \times 0.8 = 3.6$ (each tie)
 $180 \div 3.6 = 50$ (ties)
108. $800 \div 2 = 400$
 $1 + 15\% = 1.15$ (including tax)
 $400 \times 1.15 = \$460$
109. Let x be the number of entrants. Then, we have
 $x \times 5\% = 30$
 $x = 30 \div 0.05 = 600$
110. $85:15 = 17:3 = 34:6$
He missed 6 questions.
111. $1 + 10\% = 1.1$
 $4000 \times 1.1 = \$4,400$
112. $4,400 \times 1.1 = \$4,840$
113. $2(12 + 15) = 54$ (old)
 $54 \times .8 = 43.2$ ft (new)
114. $54 \times .2 = 10.8$
115. $12 \times 0.8 = 9.6$
 $15 \times 0.5 = 12$
 $12 \times 9.6 = 12 \times 10 - 4.8 = 115.2$
116. $0.8 \times 0.8 = 0.64$
 $1 - 0.64 = 0.36 = 36\%$
117. 5
118. $\frac{40}{61}$
119. .006
120. .098
 $.14 \times .7 = .098$
121. 80
122. 0.003
123. 23
124. 700
125. 0
126. 4,000
127. 27.2
128. $\frac{3}{15} = \frac{1}{5} = 20\%$
129. .04
130. 3.68
131. 4500000
132. 10,000
133. 12,000
134. 101
135. 100
136. 14.62
137. $48 = 2^4 \times 3$
138. $1 \times 2 \times 3 \times 4 \times 5 = 120$

Answer Key

- | | | |
|-----------------|------------------------|------------------------|
| 1. Already | 42. A | 82. syn key: A C B D E |
| 2. Hear | 43. B | ant key: C E A D B |
| 3. Its | 44. C | 83. syn key: C D B A E |
| 4. prescribe | 45. D | ant key: E D B A C |
| 5. fawn | 46. D | 84. syn key: D A B E C |
| 6. Besides | 47. D | ant key: D C E A B |
| 7. right | 48. A | |
| 8. foreword | 49. D | |
| 9. Dose | 50. C | |
| 10. birth | 51. D | |
| 11. breathe | 52. C | |
| 12. immoral | 53. D | |
| 13. Buy | 54. A | |
| 14. breech | 55. C | |
| 15. Who | 56. C | |
| 16. grizzly | 57. C | |
| 17. canvas | 58. A | |
| 18. cereal | 59. B | |
| 19. complements | 60. D | |
| 20. Dessert | 61. D | |
| 21. Knew | 62. D | |
| 22. a long | 63. B | |
| 23. titillate | 64. D | |
| 24. Right | 65. A | |
| 25. rise | 66. B | |
| 26. Their | 67. D | |
| 27. effect | 68. D | |
| 28. diffuse | 69. A | |
| 29. It's | 70. C | |
| 30. yoke | 71. A | |
| 31. cloths | 72. A | |
| 32. less | 73. C | |
| 33. adverse | 74. D | |
| 34. draught | 75. D | |
| 35. Aloud | 76. D | |
| 36. frieze | 77. B | |
| 37. dessert | 78. D | |
| 38. hung | 79. B | |
| 39. censure | 80. B | |
| 40. Except | 81. syn key: E A B D C | |
| 41. C | ant key: A D B E C | |

Answer Key

- | | | |
|----------------|------------------------|------------------------|
| 1. forbear | 42. D | 82. syn key: B E D C A |
| 2. palette | 43. C | ant key: A E D B C |
| 3. infer | 44. B | 83. syn key: E D C B A |
| 4. stationery | 45. C | ant key: B C D A E |
| 5. through | 46. D | 84. syn key: E A B D C |
| 6. principles | 47. B | ant key: D A C B E |
| 7. Clothes | 48. A | |
| 8. It's | 49. D | |
| 9. Write | 50. C | |
| 10. due | 51. C | |
| 11. draw | 52. C | |
| 12. among | 53. B | |
| 13. envelope | 54. C | |
| 14. Heard | 55. C | |
| 15. curb | 56. D | |
| 16. balmy | 57. A | |
| 17. advise | 58. C | |
| 18. isle | 59. D | |
| 19. Here | 60. B | |
| 20. climactic | 61. D | |
| 21. borne | 62. C | |
| 22. piece | 63. A | |
| 23. accept | 64. C | |
| 24. New | 65. B | |
| 25. Conscious | 66. A | |
| 26. born | 67. D | |
| 27. imply | 68. D | |
| 28. altogether | 69. D | |
| 29. illusion | 70. B | |
| 30. Who's | 71. B | |
| 31. queue | 72. A | |
| 32. coarse | 73. D | |
| 33. faun | 74. D | |
| 34. clothes | 75. B | |
| 35. site | 76. D | |
| 36. addition | 77. B | |
| 37. conscience | 78. D | |
| 38. desert | 79. B | |
| 39. Course | 80. A | |
| 40. bizarre | 81. syn key: D B A E C | |
| 41. A | ant key: A E D B C | |