

Answer Key

- | | |
|----------|--|
| 1. 9 | 43. 1.5 |
| 2. 5 | 44. 2.69 |
| 3. 8 | 45. - |
| 4. 2 | 46. 8.59 |
| 5. 4 | 47. 6.3 |
| 6. 5 | 48. 1.7 |
| 7. 6 | 49. 0.01 |
| 8. 15 | 50. + |
| 9. 6 | 51. 9 |
| 10. 4 | 52. 24 |
| 11. 11.1 | 53. 24 |
| 12. 12.3 | 54. 10 |
| 13. 12.8 | 55. 29 |
| 14. 11.9 | 56. 7 |
| 15. 14.8 | 57. 30 |
| 16. 14.7 | 58. 22 |
| 17. 5.3 | 59. 30 |
| 18. 0.6 | 60. 15 |
| 19. 4.1 | 61. 30 |
| 20. 1 | 62. 28 |
| 21. 9 | 63. 17 |
| 22. 12 | 64. 2 |
| 23. 9 | 65. 28 |
| 24. 2 | 66. 29 |
| 25. 6 | 67. 8 |
| 26. 81 | 68. 28 |
| 27. 7 | 69. 25 |
| 28. 6 | 70. 22 |
| 29. 8 | 71. A=6, B=6, C=3
Ans=6 (for A) & 6 (for B) & 3 (for C) |
| 30. 21 | 72. A=1, B=0, C=3
Ans=1 (for A) & 0 (for B) & 3 (for C) |
| 31. 19 | 73. A=2, B=4, C=6
Ans=2 (for A) & 4 (for B) & 6 (for C) |
| 32. 20 | 74. A=8, B=4, C=0
Ans=8 (for A) & 4 (for B) & 0 (for C) |
| 33. 27 | 75. A=3, B=0, C=4
Ans=3 (for A) & 0 (for B) & 4 (for C) |
| 34. 28 | 76. A=6, B=4, C=7
Ans=6 (for A) & 4 (for B) & 7 (for C) |
| 35. 22 | 77. A=9, B=0, C=8
Ans=9 (for A) & 0 (for B) & 8 (for C) |
| 36. 24 | 78. A=5, B=6, C=0
Ans=5 (for A) & 6 (for B) & 0 (for C) |
| 37. 37 | |
| 38. 43 | |
| 39. 30 | |
| 40. 46 | |
| 41. - | |
| 42. 4.67 | |

MAP 225 (T3) Issue 10

79. $A=3, B=0, C=5$
Ans=3 (for A) & 0 (for B) & 5 (for C)
80. $A=4, B=5, C=5$
Ans=4 (for A) & 5 (for B) & 5 (for C)
81. $7 + 6 = 13$
82. $96 - 62 = 34$
83. $78 - 32 = 46$
84. October
85. $14 - 7 = 7$
86. $12 - 9 = 3$ in
87. $92 - 17 = 75$
88. $73 + 27 = 100$
89. $12 + 1 = 13$
 $2 \times 13 = 26$
90. $15 \div 3 = 5$
91. $20 \div 4 = 5$
92. $8 \times 6 = 48$
93. $6 \times 30 = 180\text{¢} = \boxed{\$1.80}$
94. $15 \times 4 = \$60$
95. $30 \times 6 = \$180$
96. $2 \times 40 = 80$
 $140 - 80 = \boxed{60\text{¢}}$
97. $4 \times 7 = 28$
98. $7 \times 4 = 28$
99. $13 - 5 = 8$
 $8 \div 2 = 4$
100. $24 \div 3 = 8$
 $24 - (10 + 8) = \boxed{6}$
101. $3 \times 6 = 18$
102. $42 \div 7 = 6$
103. $82 - 66 = 16$
104. $140 - 95 = 45$ (yd)
105. 1 quarter & 1 dime & 1 penny
106. B
107. 3,179 more points
108. $8:45 - 0:30 = 8:15$ AM
109. $12 \times 8 = 96$ ft²
110. $4.8 \div 4 = \$1.20$
111. $42 \div 7 = 6$
112. Melody = \$20
Nelson = \$10
Orion = \$13
113. $28 - 18 = 10$
114. $25 - 19 = 6\text{¢}$
115. $24 \div 3 = 8$
 $24 - 8 = \boxed{16}$ yd
116. $4 \times 2.5 = \boxed{10}$ miles
117. $2 + 1.5 + 0.5 + 2$
 $= \boxed{\$6}$
118. $2 + 2 = 4$
 $10 - 4 = 6$
 $6 \times 2 = \boxed{12}$
119. $10 \times 2 \times 2 \times 2 \times 2 = 160$
120. $10 + 20 + 40 + 80 + 160$
 $= \boxed{310}$

Answer Key

1. 2, .2
2. 3, .3
3. 4, .4
4. 5, .5
5. 6, .6
6. 30, 300
7. 40, 400
8. 50, 500
9. 60, 600
10. 70, 700
11. 10000, 100000
12. 20000, 200000
13. 30000, 300000
14. 40000, 400000
15. 50000, 500000
16. 200, 2000
17. 300, 3000
18. 400, 4000
19. 500, 5000
20. 600, 6000
21. 14
22. 32
23. 48
24. 16
25. 4
26. $\frac{2}{9}$
GCF = 2
27. $\frac{5}{9}$
GCF = 2
28. $\frac{8}{7}$
GCF = 5
29. $\frac{2}{5}$
GCF = 6
30. $\frac{3}{7}$
GCF = 6
31. $\frac{6}{8}$
Hint: $\frac{6}{7}$
32. $\frac{8}{32}$
Hint: $\frac{1}{8}$
33. $\frac{9}{21}$
Hint: $\frac{2}{7}$
34. $\frac{6}{4}$
Hint: $\frac{5}{4}$
35. $\frac{10}{18}$
Hint: $\frac{4}{9}$
36. $\frac{12}{28}$
Hint: $\frac{2}{7}$
37. $\frac{12}{18}$
Hint: $\frac{4}{5}$
38. $\frac{24}{32}$
Hint: $\frac{5}{8}$
39. $\frac{18}{14}$
Hint: $\frac{8}{7}$
40. $\frac{20}{28}$
Hint: $\frac{4}{7}$
41. 4.5
42. 6.5
43. 1.25
44. 3.5
45. 9.75
46. 2.25
47. 3.5
48. 2.5
49. 5.5
50. 4.25
51. 11 (GCF) & 22 (LCM)
52. 23 (GCF) & 138 (LCM)
53. 26 (GCF) & 156 (LCM)
54. 12 (GCF) & 180 (LCM)
55. 11 (GCF) & 132 (LCM)
56. 10 (GCF) & 280 (LCM)
57. 24 (GCF) & 144 (LCM)
58. 28 (GCF) & 168 (LCM)
59. 21 (GCF) & 126 (LCM)
60. 27 (GCF) & 54 (LCM)
61. 20 min
62. $5 \times 4 = 20$

MAP 235 (T3) Issue 10

63. Method (I)
 $\frac{1}{2}$ hr = 30 min
 $\frac{3}{4}$ hr = 45 min
 $30 + 45 = 75 = 1 \text{ hr } 15 \text{ min}$
Method (II)
 $\frac{1}{2} + \frac{3}{4} = 1\frac{1}{4} \text{ hr} = 1 \text{ hr \& } 15 \text{ min}$
64. 150 min = 2 hr 30 min
65. $7:55 + 1:15 = 8:70 \text{ pm} = 9:10 \text{ pm}$
66. (a) $79 \div 8 = 9\text{R}7$ Ans = 10 tables enough
(b) 7 people
67. $3:00 \text{ pm} - 7:00 \text{ am} = 8 \text{ hrs}$
 $8 \div 2 = 4 \text{ books}$
68. $11:30 - 0:35 = 10:55 \text{ am}$
69. B
 $8:30 - 8:15 = 15 \text{ (min)}$
70. $2 \times 2 \times 2 = 8 \text{ (mi)}$
71. $10:10 + 4:00 = 14:10 = 2:10 \text{ pm}$
72. $10:45 - 9:05 = 1:40 = 1 \text{ hr \& } 40 \text{ min}$
73. $10:45 + 3:10 = 13:55 = 1:55 \text{ pm}$
74. $24 - 6 = 18$
 $18 \div 2 = 9$
 $9 - 3 = 6$
Both were 6. Both will be 12 in three years, so they are 9 years old now.
 $9 - 3 = 6 \text{ (3 years ago)}$
75. 3 (three)
76. 4:50 pm
77. $11:15 - 8:20 = 2 \text{ hours \& } 55 \text{ min}$
78. $11:15 - 7:30 = 3:45 = 3 \text{ hr \& } 45 \text{ min}$
79. $10:53 \text{ pm} + 1:15 = 12:08 \text{ am}$
80. $9:00 + 7:30 = 16:30 = 4:30 \text{ pm}$

Answer Key

- | | |
|---|-------------|
| 1. $\frac{8}{12}$
Hint: $\frac{4}{5}$ | 27. 6 |
| 2. $\frac{5}{7}$
Hint: $\frac{5}{6}$ | 28. 24 |
| 3. $\frac{32}{24}$
Hint: $\frac{7}{6}$ | 29. 0.002 |
| 4. $\frac{12}{36}$
Hint: $\frac{3}{8}$ | 30. 0.36 |
| 5. $\frac{24}{36}$
Hint: $\frac{4}{5}$ | 31. 2 |
| 6. $\frac{4}{40}$
Hint: $\frac{1}{9}$ | 32. 6 |
| 7. $\frac{6}{42}$
Hint: $\frac{1}{6}$ | 33. 0.4 |
| 8. $\frac{1}{5}$
Hint: $\frac{1}{4}$ | 34. 0.8 |
| 9. $\frac{12}{24}$
Hint: $\frac{3}{5}$ | 35. 9 |
| 10. $\frac{9}{7}$
Hint: $\frac{8}{7}$ | 36. 3 |
| 11. 10 | 37. 0.2 |
| 12. 8 | 38. 5 |
| 13. 6 | 39. 0.3 |
| 14. 18 | 40. 7 |
| 15. 90 | 41. 0.008 |
| 16. 6 | 42. 0.0002 |
| 17. 1.4 | 43. 0.007 |
| 18. 12 | 44. 0.0003 |
| 19. 40 | 45. 0.05 |
| 20. 1.6 | 46. 0.00002 |
| 21. 400 | 47. 0.0009 |
| 22. 0.032 | 48. 0.00003 |
| 23. 0.5 | 49. 0.0006 |
| 24. 0.028 | 50. 0.004 |
| 25. 3000 | 51. 200 |
| 26. 3.5 | 52. 4000 |
| | 53. 80000 |
| | 54. 6000 |
| | 55. 3000 |
| | 56. 70000 |
| | 57. 90000 |
| | 58. 30000 |
| | 59. 20000 |
| | 60. 5000 |
| | 61. 6 |
| | 62. 0.049 |
| | 63. 50 |
| | 64. 0.063 |
| | 65. 3 |
| | 66. 0.056 |
| | 67. 0.03 |
| | 68. 0.028 |

MAP 255 (T3) Issue 10

69. 200
70. 0.016
71. $\frac{5}{42}$
GCF = 4, LCM = 84
72. $\frac{31}{280}$
GCF = 4, LCM = 280
73. $\frac{13}{60}$
GCF = 2, LCM = 60
74. $\frac{79}{180}$
GCF = 2, LCM = 180
75. $\frac{37}{36}$
GCF = 2, LCM = 36
76. $\frac{1}{30}$
GCF = 4, LCM = 60
77. $\frac{31}{42}$
GCF = 3, LCM = 42
78. $\frac{17}{144}$
GCF = 4, LCM = 144
79. $\frac{3}{40}$
GCF = 4, LCM = 40
80. $\frac{1}{72}$
GCF = 1, LCM = 72
81. 4/25
82. 8/125
83. 2/5
84. 1/8
85. 4
86. 1/32
87. 1/1024
88. 1/64
89. 2/3
90. 3
91. 60 °
92. D
93. 120+240 = 360 miles
94. $= \frac{\text{Total distance}}{\text{Total time}}$
 $= \frac{360}{5}$
 $= 72$ miles per hour

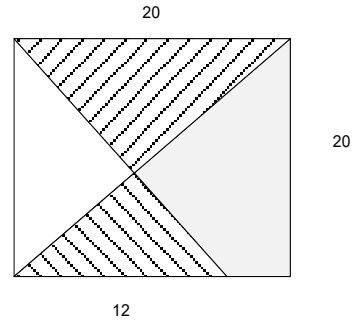
	Math	English	PE	Biology
Alice	✗		✓	✗
Brenda	✗ (iii)		✗ (iii)	✓
Chad	✓		✗ (i)	✗
Daniel	✗ (ii)	✓	✗ (i)	✗ (ii)

- 95.
- (a) C (Math)
(b) A (PE)
(c) D (English)
(d) B (Biology)
96. $650 - 50 = 600$
 $600 \div 5 = \$120.00$
97. $\frac{3}{4} \times (-12)^2 = \frac{3}{4} \times 144 = 108$
98. Method I) (Labor free)
 $24.95 - 18.95 = 6$
 $6 \times 22 = 132$
 $132 - 18.95 = \$113.05$
Method II) (Labor needed)
 $24.95 \times 22 - 18.95 \times 23 = 113.05$
99. $10^2 = 100$
 $10 \times 4 = 40$
 $\sqrt{9} = 3$
 $40 \times 3 = 120$ inches
100. $\frac{4}{3.2} \times 16 = 20$ (oz)
 $\frac{20}{5} = 4$ (min)
101. 45% of 40 = $0.45 \times 40 = 18$
102. perimeter = 16
area = 9
surface = $9 \times 2 + 16 = 34$ cm²
103. $\frac{98-49}{50} = 0.98 = 98\%$
104. $\frac{0.02}{100} = \frac{2}{10000} = \frac{1}{5000} = 1/5000$
105. $\frac{1}{4} \times 120 = 30$
106. $120 \div \frac{4}{5} = 150$
or $120 + 30 = 150$
107. C
108. $825 - 15 = 810$
 $8 + 1 = 9$
 $810 \div 9 = 90$ (smaller)
 $825 - 90 = 735$ (larger)

109. 155

Compare two striped triangles below. The side ratio is $20 : 12 = 5:3$, so the height ratio is $5:3$. The height of the bottom (smaller) triangle is $20 \times \frac{3}{5} = \frac{15}{2}$, so the area is $12 \times 7.5 \div 2 = 45$.
The area of the shaded pentagon is $200 - 45 =$

155.



110. $\frac{18}{40} = 0.45$ hour

Answer Key

- | | |
|---|-------------------|
| 1. $\frac{4}{18}$
Hint: $\frac{1}{9}$ | 27. 0.525 |
| 2. $\frac{4}{16}$
Hint: $\frac{2}{7}$ | 28. 0.51 |
| 3. $\frac{64}{48}$
Hint: $\frac{7}{6}$ | 29. 0.505 |
| 4. $\frac{40}{56}$
Hint: $\frac{4}{7}$ | 30. 4.5 |
| 5. $\frac{20}{36}$
Hint: $\frac{4}{9}$ | 31. $-12 + 6x$ |
| 6. $\frac{8}{48}$
Hint: $\frac{1}{5}$ | 32. $-16x - 20$ |
| 7. $\frac{4}{8}$
Hint: $\frac{2}{3}$ | 33. $21x + 12$ |
| 8. $\frac{40}{72}$
Hint: $\frac{4}{9}$ | 34. $-12 - 6x$ |
| 9. $\frac{24}{16}$
Hint: $\frac{5}{4}$ | 35. $-2 - 24x$ |
| 10. $\frac{2}{14}$
Hint: $\frac{1}{6}$ | 36. $-4 - 8x$ |
| 11. .5, 5 | 37. $24x - 12$ |
| 12. .6, 6 | 38. $3 + 27x$ |
| 13. .7, 7 | 39. $-9 - 30x$ |
| 14. .8, 8 | 40. $8 - 36x$ |
| 15. .9, 9 | 41. $-6x + 2$ |
| 16. 0.56 | 42. $-x - 25$ |
| 17. 0.016 | 43. $6x + 2$ |
| 18. 0.0028 | 44. $10x + 1$ |
| 19. 0.024 | 45. $5x - 9$ |
| 20. 0.63 | 46. $25x + 11$ |
| 21. 0.56 | 47. $11x + 6$ |
| 22. 4.9 | 48. $-3x - 5$ |
| 23. 24 | 49. $-6x - 4$ |
| 24. 14 | 50. $-6x - 1$ |
| 25. 350 | 51. 9 |
| 26. 0.55 | 52. 5 |
| | 53. 9 |
| | 54. -9 |
| | 55. 4 |
| | 56. 9 |
| | 57. 8 |
| | 58. 5 |
| | 59. 9 |
| | 60. -9 |
| | 61. 2 |
| | 62. -2 |
| | 63. $\frac{4}{9}$ |
| | 64. $\frac{5}{8}$ |
| | 65. $\frac{5}{7}$ |

MAP 265 (T3) Issue 10

66. $\frac{6}{7}$

67. $\frac{7}{6}$

68. $\frac{4}{3}$

69. $\frac{-2}{3}$

70. $\frac{-2}{9}$

71. $x = 5$

72. $11/2$

73. $x = -5$

74. $x = 4$

75. $x = -2$

76. $x = -1$

77. $x = 1$

78. -5

79. 14

80. $x = -4$

81. 7

82. 3

83. 3

84. 2

85. 7

86. 7

87. 3

88. -2

89. -9

90. -9

91. $-15x^2 - x - 4$

92. $-6x^2 + x - 24$

93. $-2x^2 + 4x + 4$

94. $-3x^2 - 6x + 8$

95. $1 - 5x$

96. $-10 - 8x$

97. $-4 - 16x$

98. $-6x^2 - 21x + 15$

99. $-9x^2 - 11x + 6$

100. $3x^2 - 3x - 9$

101. $x^2 + 10x + 9$

102. $x^2 + 4x + 3$

103. $x^2 + 9x + 8$

104. $x^2 + 8x + 7$

105. $x^2 + 3x + 2$

106. $x^2 + 5x + 4$

107. $x^2 + 6x + 5$

108. $x^2 + 7x + 6$

109. $x^2 + 5x + 6$

110. $x^2 + 7x + 10$

Answer Key

1. 2
2. 8
3. 64
4. $\frac{1}{16}$
5. $\frac{1}{2}$
6. $\frac{1}{\sqrt{2}}$
7. $\frac{1}{\sqrt{2}}$
8. 16
9. 32
10. 1024
11. 64
12. 128
13. 16384
14. $\frac{1}{7}$
15. $4^{3x} = (4^x)^3 = 7^3$
16. $2^x = \sqrt{4^x} = \sqrt{7}$
17. $\frac{1}{16^x} = 16^{-x} = 4^{-2x} = (4^x)^{-2} = \frac{1}{7^2}$
18. $8^{-2x} = 2^{-6x} = (4^x)^{-3} = \frac{1}{7^3}$
19. $-\sqrt{7}$
20. 3
21. $a = c^x$ and $b = c^y$
 $ab = c^{x+y}$
22. By product rule.
23. 24
24. 12
25. 6
26. 15
27. $\log_5 (175/7)^3 = 3\log_5(175/7) = 3\log_5 25 = 6$
28. $\frac{7}{3} - \frac{3}{2} = \frac{5}{6}$
29. Use c as the base:
 $c^{\log_c a \log_a b} = (c^{\log_c a})^{\log_a b} = a^{\log_a b} = b$
So, $\log_c a \log_a b = \log_c b$
30. Divide both sides by $\log_c a$.
31. Let $c = 10$ and e .
32. a) Let $t = \log_a b$
 $b = a^t$, so
 $a = b^{1/t}$
Thus, $\log_a b = 1/t$
b) $\log_a b \log_b a = 1$
 $\log_a b = 1/\log_b a$
33. By the transitivity rule,
 $\log_a b \log_b c \log_c a = \log_c a = 1$
34. $1/3$
35. $-1/2$
36. $\log_2 10 = \log 10 / \log 2 = 1/0.301 = 3.322$
37. $\log_2 4 = \log_2 \frac{1}{4} = -2$
38. $\log_8 8 = \log_8 \frac{1}{8} = -1$

39. Method I)
Let $\log_a b = t$, so $b = a^t$.
 $b^n = a^{nt}$
 $b^n = a^{m(\frac{nt}{m})}$
 $b^n = (a^m)^{(\frac{n}{m})t}$
Thus, proof is established.
- Method II)
 $\log_a B = \frac{\log B}{\log A}$
 $\log_a^m b^n = \frac{\log b^n}{\log a^m} = \frac{n \log b}{m \log a} = \frac{n}{m} \frac{\log b}{\log a} = \frac{n}{m} \log_a b$
40. Let $\log_a b = t$, so
 $b = a^t$
 $\frac{1}{b} = a^{-t}$
 $b = \frac{1}{a^{-t}}$
 $\log_{\frac{1}{a}} b = -t = \log_a \frac{1}{b}$
41. 16
42. $1/2$
43. $x = ab$
Choice B reflects this relation perfectly.
44. $x = cd$
Choice C reflects this relation perfectly.
45. $x = yz$
46. $\log_a c$
47. 5
48. Method I)
Let $x = \log_a b \log_b c$
 $a^x = (a^{\log_a b})^{\log_b c} = b^{\log_b c} = c$
 $x = \log_a c$
- Method II)
 $b = a^x$
 $c = b^y = (a^x)^y = a^{xy}$
 $\log_a c = xy = \log_a b \log_b c$
49. $\log_2 4 = 2$
50. $\log_3 27 = 3$
51. $\log_{10} 11 \log_{11} 12 \log_{12} 13 \dots \log_{999} 1000$
 $= \frac{\log 11}{\log 10} \frac{\log 12}{\log 11} \frac{\log 13}{\log 12} \dots \frac{\log 1000}{\log 999}$
 $= 3$
52. Let $a = c^x$
Let $b = c^y = (c^x)^{y/x} = a^{y/x}$
Therefore, $\log_a b = y/x = \frac{\log_c b}{\log_c a}$
53. 3
54. 2

MAP 285 (T3) Issue 10

55. 5
56. $3/2$
57. $4/3$
58. $3/2$
59. $-3/2$
60. -4
61. $\log 4/\log 2 = 2\log 2/\log 2 = 2$
62. $\log 8/\log 2 = 3\log 2/\log 2 = 3$
63. $\log \frac{1}{4}/\log 2 = -\log 4/\log 2 = -2$
64. $\log \frac{1}{8}/\log 2 = -\log 8/\log 2 = -3$
65. 6
66. $\frac{a+b}{ab}$
67. $\frac{ab}{a+b}$
68. $\log ab$
69. $\frac{\log ab}{\log a \log b}$
70. $\frac{\log a \log b}{\log ab}$
71. $\frac{-\log a \log b}{\log ab}$
72. Yes.
73. False
74. $\log 5 = \log 10/2 = 1 - \log 2 \approx 0.699$
75. $\log \frac{8}{81} = \log 8 - \log 81 = 3\log 2 - 4\log 3 \approx 3 \times 0.301 - 4 \times 0.477 = -1.005$
76. $\log 60 = \log 6 \times 10 = \log 6 + 1 = \log 2 + \log 3 + 1 = 1.778$
77. $\log 13500 = \log 27 \times 5 \times 100 = \log 3^3 + \log 5 + \log 100 = 3\log 3 + \log 5 + 2 \approx 3 \times 0.477 + 0.699 + 2 = 4.13$
78. $\log \sqrt{270} = \frac{1}{2} \log 270 = \frac{1}{2}(\log 27 + \log 10) = \frac{1}{2}(3\log 3 + 1) \approx \frac{1}{2}(3 \times 0.477 + 1) \approx 1.216$
79. $\log \sqrt[3]{\frac{9}{32}} = \frac{1}{3}(\log 9 - \log 32) = \frac{1}{3}(2\log 3 - 5\log 2) \approx \frac{1}{3}(2 \times 0.477 - 5 \times 0.301) = -0.184$
80. $\log_{12} 27 = \log_{12} 3^3 = 3\log_{12} 3$
 $\log_{12} 3 = (\log_3 12)^{-1}$
 $\log_3 12 = 1 + 2\log_3 2 = 1 + 2a$
 $\log_{12} 3 = \frac{1}{1+2a}$
81. a) If $a - b \geq 0$, then $10^{a-b} \geq 1$, so $10^a \geq 10^b$
Thus,
 $10^1 > 10^{0.3} > 1$

b) Compare the quantities to the power of 10:
 $(2, 10^{0.3}, 1)^{10}$
 $= (1024, 1000, 1)$
Therefore,
 $2 > 10^{0.3} > 1$
82. C
83. $x = 6/\log 2$
84. $x = 3/\log 2$
85. $x = 2/\log 2$
86. B
87. 2
88. $\log 20 = \log (10 \times 2) = \log 10 + \log 2 = 1 + \log 2 \approx 1.301$
89. $\log 8 = \log 2^3 = 3 \log 2 = 0.903$
90. $\log 800 = \log 100 \times 8 = \log 100 + \log 8 = 2 + \log 2^3 \approx 2.903$
91. 20
92. $10 \log 2 + 20 = 23.01$
93. 40
94. 46.02
95. $\log 40 = \log 4 \times 10 = \log 4 + \log 10 \approx 1.602$
96. $\log 200 = \log 2 \times 100 = \log 2 + \log 100 \approx 2.301$
97. $\log 0.04 = \log 4/100 = \log 4 - 2 = 2\log 2 - 2 \approx 0.602 - 2 = -1.398$
98. $\log 0.016 = \log 16/1000 = \log 16 - \log 1000 = 4\log 2 - 3 \approx 1.204 - 3 = -2.796$
99. $\log \frac{1}{8000} = -\log 8000 = -(\log 8 + \log 1000) = -3.903$
100. $\log .25 = \log \frac{1}{4} = -\log 4 \approx -0.602$