

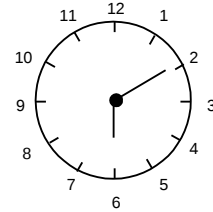
Answer Key

- | | |
|----------|--|
| 1. 18 | 43. 4 |
| 2. 5 | 44. 4.7 |
| 3. 40 | 45. 4.8 |
| 4. 3 | 46. 9 |
| 5. 6 | 47. 0.9 |
| 6. 8 | 48. 7.1 |
| 7. 6 | 49. 4.3 |
| 8. 18 | 50. 8.2 |
| 9. 3 | 51. 28 |
| 10. 12 | 52. 31 |
| 11. 10.9 | 53. 28 |
| 12. 10.2 | 54. 5 |
| 13. 14.9 | 55. 9 |
| 14. 7.6 | 56. 19 |
| 15. 17 | 57. 28 |
| 16. 6.2 | 58. 28 |
| 17. 16 | 59. 18 |
| 18. 14.7 | 60. 28 |
| 19. 11 | 61. 5 |
| 20. 16.7 | 62. 13 |
| 21. 56 | 63. 26 |
| 22. 32 | 64. 26 |
| 23. 63 | 65. 29 |
| 24. 6 | 66. 13 |
| 25. 2 | 67. 24 |
| 26. 63 | 68. 32 |
| 27. 12 | 69. 20 |
| 28. 12 | 70. 28 |
| 29. 10 | 71. A=8, B=8, C=9
Ans=8 (for A) & 8 (for B) & 9 (for C) |
| 30. 28 | 72. A=2, B=3, C=6
Ans=2 (for A) & 3 (for B) & 6 (for C) |
| 31. 9 | 73. A=2, B=8, C=4
Ans=2 (for A) & 8 (for B) & 4 (for C) |
| 32. 23 | 74. A=6, B=9, C=1
Ans=6 (for A) & 9 (for B) & 1 (for C) |
| 33. 24 | 75. A=7, B=2, C=1
Ans=7 (for A) & 2 (for B) & 1 (for C) |
| 34. 29 | 76. A=8, B=1, C=1
Ans=8 (for A) & 1 (for B) & 1 (for C) |
| 35. 7 | 77. A=6, B=3, C=7
Ans=6 (for A) & 3 (for B) & 7 (for C) |
| 36. 18 | 78. A=5, B=3, C=2
Ans=5 (for A) & 3 (for B) & 2 (for C) |
| 37. 13 | |
| 38. 8 | |
| 39. 16 | |
| 40. 26 | |
| 41. 2.7 | |
| 42. 7.1 | |

MAP 225 (T3) Issue 6

79. $A=8, B=2, C=7$
 Ans=8 (for A) & 2 (for B) & 7 (for C)
80. $A=2, B=0, C=2$
 Ans=2 (for A) & 0 (for B) & 2 (for C)
81. 7
82. 4
83. 5
84. 3
85. 4
86. 2
87. 9
88. 8
89. 6
90. 8
91. 148
92. 178
93. 30
94. 107
95. 111
96. 29
97. 127
98. 69
99. 172
100. 58
101. $5 \times 6 = 30$
102. $5 \times 7 = 35$
103. $8 \times 70 = 560$
104. $61 - 15 = 46$

105. Method I)
 $560 - 500 = 60$
 $60 \div 5 = 12$
 $12 - 1 = \boxed{11}$
 Method II)
 505, 510, 515, 520, 525, 530
 535, 540, 545, 550, 555
106. $6 \times 50 = 300$
107. The time is $5:25 + 0:45 = 6:10$.



108. 7:50 AM
109. $17 + 6 = 23$
110. $91 - 66 = 25$
111. $90 \div 10 = \boxed{9 \text{ days}}$
112. 100 years
113. 136 years
114. $75 + 28 = 103$
115. $7 + 5 + 11 = 23$
116. $1 + 2 + 3 + 4 + 5 + 6 + 7 = \boxed{28 \text{ miles}}$
117. A
118. C
119. $6:30 + 2:30 = 9:00 \text{ pm}$
120. 36 sq. ft
121. 72 cu. ft

Answer Key

- | | |
|-------------------|--|
| 1. 100, 10 | 38. $\frac{2}{3}$ |
| 2. 20, 2 | GCF = 12 |
| 3. 200, 20 | 39. $\frac{5}{6}$ |
| 4. 30, 3 | GCF = 12 |
| 5. 300, 30 | 40. $\frac{3}{5}$ |
| 6. 40, 4 | GCF = 16 |
| 7. 400, 40 | 41. 2.5 |
| 8. 50, 5 | 42. 10.75 |
| 9. 500, 50 | 43. 10.5 |
| 10. 60, 6 | 44. 1.5 |
| 11. .04, .004 | 45. 2.75 |
| 12. .05, .005 | 46. 9.5 |
| 13. .06, .006 | 47. 3.25 |
| 14. .07, .007 | 48. 10.25 |
| 15. .08, .008 | 49. 4.75 |
| 16. .09, .009 | 50. 4.75 |
| 17. .001, .0001 | 51. $7\frac{3}{4}$ |
| 18. .002, .0002 | 52. $10\frac{1}{2}$ |
| 19. .003, .0003 | 53. $5\frac{1}{2}$ |
| 20. .004, .0004 | 54. $2\frac{5}{8}$ |
| 21. 8 | 55. $6\frac{3}{8}$ |
| 22. 8 | 56. $6\frac{1}{4}$ |
| 23. 36 | 57. $4\frac{3}{8}$ |
| 24. 30 | 58. $8\frac{1}{10}$ |
| 25. 36 | 59. $10\frac{1}{4}$ |
| 26. 15 | 60. $9\frac{3}{5}$ |
| 27. 49 | 61. |
| 28. 15 | 62. 8 (GCF) & 168 (LCM) |
| 29. 8 | 63. 2 (GCF) & 130 (LCM) |
| 30. 14 | 64. 6 (GCF) & 234 (LCM) |
| 31. $\frac{6}{7}$ | 65. 2 (GCF) & 56 (LCM) |
| GCF = 2 | 66. 2 (GCF) & 72 (LCM) |
| 32. $\frac{2}{9}$ | 67. 4 (GCF) & 48 (LCM) |
| GCF = 6 | 68. 8 (GCF) & 112 (LCM) |
| 33. $\frac{4}{5}$ | 69. 12 (GCF) & 72 (LCM) |
| GCF = 6 | 70. 6 (GCF) & 60 (LCM) |
| 34. $\frac{4}{7}$ | 71. $3\frac{7}{16} - 2\frac{10}{16} = 13/16$ |
| GCF = 6 | 72. 28 |
| 35. $\frac{5}{9}$ | 73. 36 |
| GCF = 6 | |
| 36. $\frac{7}{9}$ | |
| GCF = 6 | |
| 37. $\frac{8}{9}$ | |
| GCF = 9 | |

MAP 235 (T3) Issue 6

74. $1/5$
75. 10
76. $\frac{1}{3}(36) = 12$
 $\frac{1}{4}(36 + 12) = 12$
 $\frac{1}{6}(36 + 12) = 8$
 $12 - 8 = 4$ (losses)
77. $4\frac{3}{8}, 4\frac{3}{4}$
 Ans = $4\frac{3}{8}$ & $4\frac{3}{4}$
78. $\frac{1}{3} \times 309 = 103$
 $\frac{1}{4} \times 124 = 31$
 $\frac{1}{3} \times 27 = 9$
 $103 - (31 + 9) = 63$
79. $6 \div 0.75 = 6 \div \frac{3}{4} = 8$ days
80. $6 \times 6 = 36$
 $1 - \frac{1}{4} = \frac{3}{4}$ (left)
 $36 \times \frac{3}{4} = 27$
81. $15 - 10\frac{5}{12} = 4\frac{7}{12}$
82. 18
83. 21
84. 1.5 times
85. 14 cups
86. $\frac{6 - \frac{3}{4}}{2}$
 Ans = 3 halves
87. $50 \times \frac{1}{20} = \2.50
88. $\frac{10.5 \times 4}{1.75 \times 4} = \frac{42}{7} = 6$
89. $120 \times \frac{1}{4} = 30$
 $120 - 30 = \$90$
90. $120 \times \frac{1}{4} = 30$
 $120 - 30 = 90$ pounds
91. $1 - \frac{2}{3} = \frac{1}{3}$
 $215 \times 2 = \$430$
- | | | |
|---------------|---------------|---------------|
| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |
| | | \$215 |
92. $1 - 60\% = 0.4$
 $0.4 \times 4 \times 10 = \16
93. $1 + 2 + 3 + 4 + 5 + 6 + 7 = 28$
 Ans = 8 draws
94. $1 + 2 + 4 + 8 + 16 = 31$
95. 1 dollar = 4 quarters = 12 pcs
 4 dollars = 48 pcs
96. 1,537
97. $1+2+3+\dots+10 = 55$
 $5+7+9+15 = 36$
 $55 - 36 = 19$
98. $1+3+5+7+9 = 25$
99. 1□□□□□□□0
 The leading digit must be 1.
 The tail digit must be 0.
 There is only one '1' to fill in the remaining □ boxes.
 Ans = 8
- | chicken | pig | legs |
|---------|-----|------|
| 1 | 2 | 10 |
| 5 | 10 | 50 |
100. Ans = 10 pigs

Answer Key

1. 3
2. 1200
3. 0.4
4. 100000
5. 0.02
6. 1600
7. 7
8. 1800
9. 3
10. 4000
11. 3
12. 0.0012
13. 4
14. 0.001
15. 0.2
16. 0.0016
17. 700
18. 0.0018
19. 30
20. 0.0004
21. 667
22. 720
23. 775
24. 832
25. 891
26. 952
27. 1015
28. 1080
29. 1147
30. 1216
31. $2^3 \times 3^0 \times 5^0 \times 7^1$
32. $2^4 \times 3^0 \times 5^1 \times 7^0$
33. $2^0 \times 3^4 \times 5^0 \times 7^0$
34. $2^6 \times 3^0 \times 5^0 \times 7^0$
35. $2^0 \times 3^2 \times 5^0 \times 7^1$
36. $2^1 \times 3^0 \times 5^2 \times 7^0$
37. $2^2 \times 3^1 \times 5^1 \times 7^0$
38. $2^3 \times 3^2 \times 5^0 \times 7^0$
39. $2^0 \times 3^1 \times 5^2 \times 7^0$
40. $2^1 \times 3^3 \times 5^0 \times 7^0$
41. 25 (A) & 5 (B) & 6 (C) & 5 (D)
42. 100 (A) & 10 (B) & 6 (C) & 5 (D)
43. 32 (A) & 8 (B) & 7 (C) & 2 (D)
44. 54 (A) & 6 (B) & 5 (C) & 3 (D)
45. 80 (A) & 4 (B) & 7 (C) & 5 (D)
46. $\frac{13}{150}$
GCF = 5, LCM = 150
47. $\frac{11}{20}$
GCF = 2, LCM = 20
48. $\frac{11}{21}$
GCF = 4, LCM = 84
49. $\frac{37}{350}$
GCF = 5, LCM = 350
50. $\frac{55}{84}$
GCF = 2, LCM = 84
51. $\frac{1}{28}$
GCF = 3, LCM = 84
52. $\frac{19}{144}$
GCF = 2, LCM = 144
53. $\frac{23}{100}$
GCF = 5, LCM = 100
54. $\frac{1}{360}$
GCF = 5, LCM = 360
55. $\frac{2}{15}$
GCF = 2, LCM = 30
56. 0.04
57. 0.3
58. 4
59. 0.5
60. 3
61. 8000
62. 2
63. 9025
64. 0.6
65. 3, 000
66. 3 in (A) & 8 in (B) & 8 in (C) & 3 in (D)
67. 2 in (A) & 10 in (B) & 3 in (C) & 4 in (D)
68. 3 in (A) & 5 in (B) & 2 in (C) & 7 in (D)
69. 5 in (A) & 7 in (B) & 4 in (C) & 2 in (D)
70. 4 in (A) & 6 in (B) & 6 in (C) & 5 in (D)
71. $\frac{60-48}{60} = 0.2 = 20\%$
72. $290 \div 50 = 5.8$ hours = 5 hr & 48 min

MAP 255 (T3) Issue 6

73. $16 \times 9 = 144$ (rectangle area)

$\frac{1}{2} \times 2 \times 2 = 2$ (triangle area)

$2 \times 4 = 8$

$144 - 8 = 136 \text{ cm}^2$ (shaded region)

74. $1200/500 = 2.4$ hours = 2 hr & 24 min

75. $3.5 \times 16 = 4 \text{ ft} \& 8 \text{ in}$

76. $600 \times 10\% = 60$

$600 + 60 = 660$

$660 \div (5.20 - 4.00) = 550$

$550 + 1 = 551$

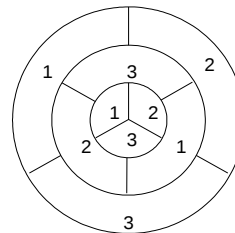
77. $\frac{240}{15} = 16 \text{ gal}$

78. $240 \times \frac{3}{15} = \48

79. $\frac{240}{50} = 4.8 \text{ hr} = 4 \text{ hr} \& 48 \text{ min}$

80. A

81. 3



82. A

83. (a) $\frac{21+5}{2} = 13$ (years old Andy)

(b) $\frac{21-5}{2} = 8$ (years old Brandon)

84. $600 \div 240 = 10 \div 4 = 2.5$

$2.5 \times 50 = 125 \text{ mL milk}$

85. 1.2

86. $6 \times 5 \div 2 = 15$ chords

87. 3 possible pairs
WB, WR, and BR.

88. 6 possible pairs
WW, WB, WR, BB, BR, and RR.

89. T

90. F

Answer Key

- | | |
|----------------|--------------------|
| 1. 1000, 10000 | 43. $-6 + 10x$ |
| 2. 2000, 20000 | 44. $-6 + 14x$ |
| 3. 3000, 30000 | 45. $4x - 4$ |
| 4. 4000, 40000 | 46. $8 - 4x$ |
| 5. 5000, 50000 | 47. $25 - 10x$ |
| 6. 6000, 60000 | 48. $33x + 12$ |
| 7. 7000, 70000 | 49. $9 + 15x$ |
| 8. 8000, 80000 | 50. $6x + 12$ |
| 9. 9000, 90000 | 51. $-5x - 9$ |
| 10. 100, 1000 | 52. $4x + 2$ |
| 11. 25000 | 53. $8x + 5$ |
| 12. 30000 | 54. $4x + 17$ |
| 13. 24000 | 55. $-10x$ |
| 14. 28000 | 56. $-9x - 18$ |
| 15. 32000 | 57. $-8x + 3$ |
| 16. 100000 | 58. $6x - 8$ |
| 17. 35000 | 59. $3x - 9$ |
| 18. 150000 | 60. $-4x + 8$ |
| 19. 200000 | 61. 8 |
| 20. 360000 | 62. 7 |
| 21. 280 | 63. 5 |
| 22. 300 | 64. 7 |
| 23. 100 | 65. 8 |
| 24. 3.5 | 66. 7 |
| 25. 25 | 67. 8 |
| 26. 15 | 68. 3 |
| 27. 240 | 69. -7 |
| 28. 200 | 70. 9 |
| 29. 36 | 71. $\frac{2}{3}$ |
| 30. 320 | 72. $\frac{7}{9}$ |
| 31. 2 | 73. $\frac{7}{8}$ |
| 32. 10.5 | 74. $\frac{4}{3}$ |
| 33. 20.5 | 75. $\frac{7}{2}$ |
| 34. 25.5 | 76. $\frac{-3}{2}$ |
| 35. 30.5 | 77. $\frac{-1}{2}$ |
| 36. 35.5 | 78. $\frac{-5}{3}$ |
| 37. 40.5 | 79. 4 |
| 38. 45.5 | 80. $\frac{3}{2}$ |
| 39. 50.5 | |
| 40. 60.5 | |
| 41. $14 + 20x$ | |
| 42. $-2 - 6x$ | |

MAP 265 (T3) Issue 6

81. $x = -5$

82. 4

83. $x = 4$

84. $x = 2\frac{2}{3}$

85. $x = 2$

86. $x = 1$

87. $n = \frac{5}{3} = 5/3$

88. -12

89. $n = -5$

90. $x = 2$

91. 5

92. 4

93. 7

94. 5

95. 5

96. 6

97. 3

98. 8

99. 4

100. $1/2$

101. $2x^2 + 2x - 6$

102. $4x^2 - 13x + 10$

103. $-12x^2 - 4x - 4$

104. $-2x^2 + 3x - 4$

105. $6x - 8$

106. $3x - 3$

107. $-12 - 4x$

108. $-15x + 3$

109. $6x^2 - 11x - 5$

110. $4x^2 - 10x - 6$

Answer Key

1. 128
2. 243
3. 243
4. 256
5. 256
6. 256
7. 512
8. 512
9. 512
10. 2187
11. 729
12. 1024
13. 1024
14. 1024
15. 2048
16. 2048
17. 2048
18. 4096
19. 4
20. 4
21. $\frac{2}{3}$
22. 2
23. $5\frac{1}{2}$
24. $3\frac{2}{3}$
25. $2\frac{3}{4}$
26. $2\frac{1}{5}$
27. 4
28. 3
29. $\frac{2}{3}$
30. $\frac{1}{2}$
31. 4
32. 256
33. $\frac{1}{9}$
34. 81
35. 4
36. 8
37. 16
38. $\frac{1}{16}$
39. $\frac{1}{4}$
40. $\frac{1}{8}$
41. 9
42. 27
43. $9\sqrt{3}$
44. 3
45. 9
46. $3^3\sqrt{3}$
47. $\frac{1}{16}$
48. $\frac{1}{32}$
49. $\frac{1}{9}$
50. $\frac{1}{27}$
51. $\frac{5}{6} + \frac{2}{3} = 1\frac{1}{2}$
52. $\frac{7}{10} + \frac{1}{2} = 1\frac{1}{5}$
53. $\frac{9}{3} + \frac{2}{3} = 3\frac{2}{3}$
54. $\frac{7}{8} + \frac{1}{3} + \frac{1}{2} = 1\frac{17}{24}$
55. $\frac{6}{7} + \frac{2}{5} + \frac{2}{1} = 3\frac{9}{35}$
56. $\frac{9}{7} + \frac{2}{3} = 1\frac{20}{21}$
57. $\frac{9}{5} + \frac{5}{2} = 4\frac{3}{10}$
58. $\frac{7}{5} + \frac{1}{3} = 1\frac{11}{15}$
59. $\frac{9}{6} + \frac{3}{1} + \frac{2}{3} = 5\frac{1}{6}$
60. $\frac{2}{6} + \frac{6}{5} + \frac{3}{1} = 4\frac{8}{15}$
61. $(x-5)(x-2)$
62. $(x-2)(x+4)$
63. $(x-6)(x-1)$
64. $(x-6)(x+5)$
65. $(x-5)(x+1)$
66. $9(2x+1)(5x+6) = 0$
 $x = -1/2$ or $-6/5$
67. $(x-4)(10x+3) = 0$
 $x = 4$ or $-3/10$
68. $(x+12)(10x-1) = 0$
 $x = -12$ or $1/10$
69. $3(2x+1)(5x+12) = 0$
 $x = -1/2$ or $-12/5$

MAP 285 (T3) Issue 6

70. $5(5x + 4)(2x - 3) = 0$

$x = -4/5$ or $3/2$

71. $x = 2x + 2$

$x = -2$

72. $x - 1 = 2x + 4$

$x = -5$

73. $2x + 1 = 3$

$x = 1$

74. $4x = 6x - 2$

$2x = 3x - 1$

$x = 1$

75. $2\sqrt{x} = 1$

$4x = 1$

$x = 1/4$

76. $7^{2(x-5)} = 7^{-(x-2)}$

$2x - 10 = -x + 2$

$3x = 12$

$x = 4$

77. $10^{2(2x+1)} = 10^{-3(x+2)}$

$4x + 2 = -3x - 6$

$7x = -8$

$x = -1\frac{1}{7}$

78. $3^{-2(x+3)} = 3^{3(x+5)}$

$-2x - 6 = 3x + 15$

$-5x = 21$

$x = -4.2$

79. $x^2 + 2x = 3$

$(x - 1)(x + 3) = 0$

$x = 1$ or -3

80. $x^2 - 3x = 2(3x - 7)$

$x^2 - 9x + 14 = 0$

$(x - 2)(x - 7) = 0$

$x = 2$ or 7

81. $x^2 - 3x + 3 = 1$

$x^2 - 3x + 2 = 0$

$(x - 1)(x - 2) = 0$

$x = 1$ or 2

82. $2x + 1 = 10$

$x = 4.5$

83. $\frac{x}{x+1} = \frac{1}{10}$

$10x = x + 1$

$9x = 1$

$x = \frac{1}{9}$

84. $2\log(x + 1) = 6\log 2$

$\log(x + 1) = 3\log 2$

$x + 1 = 8$

$x = 7$

85. $x^2 + 1 = 10(x + 2)$

$x^2 - 10x = 19$

$x^2 - 10x + 25 = 44$

$(x - 5)^2 = (2\sqrt{11})^2$

$x = 5 \pm 2\sqrt{11}$

86. Let: $y = 3^x$

$y^2 - 10y + 9 = 0$

$(y - 1)(y - 9) = 0$

$y = 1$ or 9

$x = 0$ or 2

87. Let: $y = 4^x$

$3y^2 + 5y - 2 = 0$

$(3y - 1)(y + 2) = 0$

$y = 1/3$ (-2 invalid)

$x = -\ln_4 3$

88. $2(x - 2) = x$

$2x - 4 = x$

$x = 4$

89. $\log 10^{x-2} = \log 5^x$

$(x - 2) = x \log 5$

$x(1 - \log 5) = 2$

$x = 2/\log 2$

90. $(x + 2)\log 2 = x \log 3$

$(\log 3 - \log 2)x = 2\log 2$

$x = \frac{2 \log 2}{\log 3 - \log 2}$