

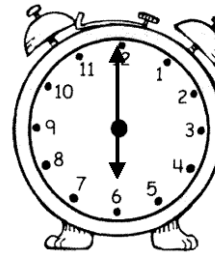
Answer Key

- | | |
|-----------|--|
| 1. 2 | 43. 1.4 |
| 2. 9 | 44. 9.6 |
| 3. 20 | 45. 3.1 |
| 4. 8 | 46. 7.3 |
| 5. 8 | 47. 0.6 |
| 6. 3 | 48. + |
| 7. 9 | 49. 8.2 |
| 8. 21 | 50. 3.3 |
| 9. 2 | 51. 7 |
| 10. 7 | 52. 8 |
| 11. 15.42 | 53. 16 |
| 12. 11.2 | 54. 5 |
| 13. 31.1 | 55. 31 |
| 14. 11.3 | 56. 29 |
| 15. 10 | 57. 33 |
| 16. 22.3 | 58. 16 |
| 17. 17.03 | 59. 29 |
| 18. 10.8 | 60. 31 |
| 19. 5.91 | 61. 29 |
| 20. 1.9 | 62. 30 |
| 21. 18 | 63. 29 |
| 22. 12 | 64. 6 |
| 23. 9 | 65. 10 |
| 24. 5 | 66. 16 |
| 25. 2 | 67. 31 |
| 26. 20 | 68. 17 |
| 27. 42 | 69. 34 |
| 28. 24 | 70. 16 |
| 29. 49 | 71. A=7, B=2, C=8
Ans=7 (for A) & 2 (for B) & 8 (for C) |
| 30. 63 | 72. A=8, B=7, C=1
Ans=8 (for A) & 7 (for B) & 1 (for C) |
| 31. 30 | 73. A=5, B=1, C=5
Ans=5 (for A) & 1 (for B) & 5 (for C) |
| 32. 24 | 74. A=5, B=9, C=2
Ans=5 (for A) & 9 (for B) & 2 (for C) |
| 33. 14 | 75. A=8, B=2, C=4
Ans=8 (for A) & 2 (for B) & 4 (for C) |
| 34. 15 | 76. A=2, B=1, C=9
Ans=2 (for A) & 1 (for B) & 9 (for C) |
| 35. 3 | 77. A=4, B=9, C=1
Ans=4 (for A) & 9 (for B) & 1 (for C) |
| 36. 44 | 78. A=5, B=0, C=6
Ans=5 (for A) & 0 (for B) & 6 (for C) |
| 37. 46 | |
| 38. 19 | |
| 39. 5 | |
| 40. 7 | |
| 41. 1.8 | |
| 42. 2.8 | |

MAP 225 (T3) Issue 8

79. $A=4, B=3, C=6$
 Ans=4 (for A) & 3 (for B) & 6 (for C)
80. $A=8, B=2, C=1$
 Ans=8 (for A) & 2 (for B) & 1 (for C)
81. 7
82. 5
83. 5
84. 3
85. 9
86. 3
87. 9
88. 8
89. 6
90. 9
91. 144
92. 102
93. 102
94. 60
95. 87
96. 56
97. 135
98. 164
99. 97
100. 60
101. $3 + 7 = 10$
102. $20 - 8 - 3 = 9$
103. $900 - 420 - 350 = 130$
104. $54 \div 3 = 18$

105. $2 \times (3 + 2) = 10$
 $15 - 10 = 5$
106. (a) 180 minutes
 (b) 3 hours
107. $42 \div 6 = 7$
108. $23 - 15 = 8$
109. $48 \div 12 = 4$ (ft)
110. $9 + 13 + 6 = 28$
111. $4 \times 3 = 12$
112. $7 \times 4 = 28$
113. $680 + 120 = 800$
114. $7 \times 3 = \$21$
115. $212 + 68 = 280$
116. $4:30 + 1:30 = 6:00$



117. $350 - 150 = 200$
 $200 + 350 = \boxed{550}$
118. $42 \div 7 = 6$
119. $1\frac{1}{2} = 1\frac{1}{2}$ hours
120. 90 minutes

Answer Key

1. 100, 10
2. 20, 2
3. 200, 20
4. 30, 3
5. 300, 30
6. 1000, 10000
7. 2000, 20000
8. 3000, 30000
9. 4000, 40000
10. 5000, 50000
11. .04, .004
12. .05, .005
13. .06, .006
14. .07, .007
15. .08, .008
16. 10000, 100000
17. 20000, 200000
18. 30000, 300000
19. 40000, 400000
20. 50000, 500000
21. 8
22. 8
23. 35
24. 2
25. 2
26. 24
27. 4
28. 24
29. 8
30. 6
31. $\frac{9}{8}$
GCF = 2
32. $\frac{4}{5}$
GCF = 6
33. $\frac{7}{9}$
GCF = 6
34. $\frac{5}{6}$
GCF = 9
35. $\frac{4}{9}$
GCF = 10
36. $\frac{7}{6}$
GCF = 12
37. $\frac{2}{9}$
GCF = 14
38. $\frac{5}{9}$
GCF = 14
39. $\frac{2}{3}$
GCF = 20
40. $\frac{3}{7}$
GCF = 20
41. 8.5
42. 2.5
43. 5.5
44. 10.5
45. 1.75
46. 9.25
47. 7.5
48. 9.25
49. 5.25
50. 2.25
- 51.
52. 4 (GCF) & 84 (LCM)
53. 3 (GCF) & 60 (LCM)
54. 3 (GCF) & 42 (LCM)
55. 14 (GCF) & 84 (LCM)
56. 6 (GCF) & 72 (LCM)
57. 6 (GCF) & 126 (LCM)
58. 4 (GCF) & 80 (LCM)
59. 11 (GCF) & 110 (LCM)
60. 4 (GCF) & 60 (LCM)
61. $\frac{5}{13}$
62. $4\frac{3}{10} - 2\frac{1}{10} = 2\frac{1}{5}$
63. $42 + 12 = 54$ min
64. $1\frac{1}{3} + \frac{3}{8} + \frac{3}{4} = 2\frac{11}{24}$
65. 4
66. $6 \times 12.5 = \$75$
67. $20 \div \frac{1}{2} = 40$
68. $4 \div \frac{1}{12} = 48$
69. $91.1 - 70.2 = \underline{20.9 \text{ pounds}}$
70. $2 \times 6 = 12$
 $2 \times 8 = 16$ (pieces)
 $\frac{3}{16} \times 12 = \frac{9}{4} = \2.25
71. $\frac{1}{3} + \frac{1}{9} = \frac{4}{9}$
 $1 - \frac{4}{9} = \frac{5}{9}$
72. $5\frac{1}{4} - 3\frac{2}{3} = 1\frac{7}{12}$
73. $40 + 15 = 55$ min

MAP 235 (T3) Issue 8

74. 20
75. $3 \times 2\frac{3}{4} = 8\frac{1}{4} = 8 \frac{1}{4} \text{ mi}$
76. $1 - \frac{1}{3} = \frac{2}{3}$
 $24 \times \frac{2}{3} = \underline{16}$
77. $8 \div \frac{2}{3} = 12$
78. $1 - \frac{1}{3} = \frac{2}{3}$
 $27 \times \frac{2}{3} = 18$
 $1 - \frac{2}{3} = \frac{1}{3}$
 $18 \times \frac{1}{3} = 6$
79. $\frac{1}{3} = 3/9$
 Original = $4/9$
80. 4
81. $136 \div 2 = 68$ (average)
 $68 + 1 = 69$ (right)
 $68 - 1 = 67$ (left)
 $6 + 8 = 14$
82. $15 = 3 \times 5$
 $3 + 5 = \underline{8}$
83. $15 \times 2 = 30$
 $30 - 20 = 10$ (goose eggs)
84. $16 - 1 = 15$
 $\frac{2}{3} \times 15 = \underline{10}$
85. $17 \div 4 = 4 \text{ R}1$
 $M = 8$
 $A = 4$
 $D = \underline{5 \text{ cones}}$
86. $17 \div 3 = 5 \text{ R}2$
 Ans = 5 (groups in total) & 2 (groups in the size of 4)
87. $18 \div (4 - 1) = 6$
 $6 \times 4 = 24$
88. $18.9 \div 3 = 6.3$
 $7 \times 6.3 = 46.1$
 $50 - 46.1 = 3.9$
 Ans = 7 T-shirts & \$3.90 change
89. $19 - \star = 7 + \star$
 $12 = 2\star$
 $\star = \underline{6}$
90. $19 \times 20 = 380$
 Not 363
 Ans = 373

Answer Key

- | | |
|-----------|----------------------|
| 1. 280 | 43. 0.006 |
| 2. 300 | 44. 0.04 |
| 3. 100 | 45. 0.002 |
| 4. 3.5 | 46. 0.09 |
| 5. 25 | 47. 0.07 |
| 6. 15 | 48. 0.07 |
| 7. 240 | 49. 0.0003 |
| 8. 200 | 50. 0.006 |
| 9. 36 | 51. 3 |
| 10. 320 | 52. 0.0012 |
| 11. 6 | 53. 4 |
| 12. 0.049 | 54. 0.001 |
| 13. 50 | 55. 0.2 |
| 14. 0.063 | 56. 0.0016 |
| 15. 3 | 57. 700 |
| 16. 0.056 | 58. 0.0018 |
| 17. 0.03 | 59. 30 |
| 18. 0.028 | 60. 0.0004 |
| 19. 200 | 61. $\frac{5}{8}$ |
| 20. 0.016 | GCF = 12, LCM = 24 |
| 21. 5 | 62. $\frac{23}{280}$ |
| 22. 700 | GCF = 5, LCM = 280 |
| 23. 40 | 63. $\frac{59}{96}$ |
| 24. 6 | GCF = 4, LCM = 96 |
| 25. 90 | 64. $\frac{4}{45}$ |
| 26. 700 | GCF = 6, LCM = 90 |
| 27. 8 | 65. $\frac{17}{144}$ |
| 28. 0.2 | GCF = 2, LCM = 144 |
| 29. 6 | 66. $\frac{1}{28}$ |
| 30. 30 | GCF = 5, LCM = 140 |
| 31. 8 | 67. $\frac{7}{30}$ |
| 32. 0.006 | GCF = 1, LCM = 30 |
| 33. 0.5 | 68. $\frac{3}{56}$ |
| 34. 7 | GCF = 2, LCM = 56 |
| 35. 7 | 69. $\frac{41}{144}$ |
| 36. 0.4 | GCF = 4, LCM = 144 |
| 37. 0.3 | 70. $\frac{1}{144}$ |
| 38. 6 | GCF = 2, LCM = 144 |
| 39. 9 | 71. 2 |
| 40. 2 | 72. $\frac{1}{2}$ |
| 41. 0.005 | |
| 42. 0.08 | |

MAP 255 (T3) Issue 8

73. 2
74. 225
75. $\frac{1}{64}$
76. $\frac{1}{3}$
77. $\frac{1}{16}$
78. $\frac{1}{3}$
79. $\frac{1}{5}$
80. 2
81. 3 in (A) & 6 in (B) & 6 in (C) & 5 in (D)
82. 2 in (A) & 5 in (B) & 8 in (C) & 5 in (D)
83. 6 in (A) & 8 in (B) & 7 in (C) & 4 in (D)
84. 3 in (A) & 7 in (B) & 7 in (C) & 5 in (D)
85. 5 in (A) & 12 in (B) & 2 in (C) & 5 in (D)
86. (a) 10 (b) 100 (c) 1
87. (a) Just think of buying 5 for \$4.50.
 $(20 \div 5) \times 4.5 = \18.00
 (b) $27 \div 4.5 \times 5 = 30$ plants
88. $5 + 7 = 12$
 $3 - 1 = 2$
 $1 \div 2 = \frac{1}{2}$
 $12 \times \frac{1}{2} = 6$
 $6 - 4 = 2$ whites
89. $-20 \times -30 \times -40 \times -50 \times \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} \times \frac{1}{5} = 10,000$
 (Note: You should use cancellation instead of brutal multiplication.)
90. $10 + 15 = 25$ (students)
 $4 \times 25 + 10 = 110$ books
91. $2178 \div 9 = \$242$
92. $12 \times 5 = 60$
 $8 \times 6 = 48$
 $60 - 48 = 12$
 $12 \div 4 = 3$
93. $39 \times 3 = 117$
 $117 - 9 = 108$
94. $6 \times 5 \times 4 = 120$ outcomes
95. $60 \div 5 = 12$
 $12 \times \frac{3}{4} = 9$ (mi)
96. $26 \times 26 \times 10 \times 10 \times 10 = 676000$
97. $5 \times 26 \times 9 \times 10 \times 10 = 117000$
98. $5 \times 25 \times 9 \times 9 \times 8 = 81,000$
99. $3 \times 4 = 12$ (binders cost)
 $20 - 12 = 8$ (pencils cost)
 $8 \div 4 = \$2.00$ (each pencil)
100. $4 \times 4 + 3 \times 2 = \22
101. $2,000 \times 0.8 = \$1,600$
102. $15,000 \times \frac{6}{15} = 15000 \times \frac{2}{5} = 6,000$
103. $6 \text{ in} = \frac{1}{2} \text{ ft}$
 $9 \div \frac{1}{2} = 18$
 $12 \div \frac{1}{2} = 24$
 $18 \times 24 = 72 \times 6 = 432$ tiles
104. $1 - \frac{1}{6} - \frac{1}{3} - \frac{1}{8} = \frac{3}{8}$
 $12000 \div \frac{3}{8} = \32000
105. (1)
- | | | | | |
|----------|----------|----------|----------|--------------|
| A | B | C | D | A = 1 |
| | A | B | C | |
| | | A | B | |
| + | | | A | |
| 1 | 9 | 8 | 9 | |
- (2)
- | | | | |
|----------|----------|----------|--------------|
| B | C | D | B = 7 |
| | B | C | |
| | | B | |
| + | | B | |
| 8 | 7 | 8 | |
- (3)
- | | | | |
|---|----------|----------|------------------------------|
| | C | D | C = 9
D = 2 |
| | | C | |
| | | | |
| + | | | |
| 1 | 0 | 1 | |
- Ans = 1792

Answer Key

- | | |
|---------------|--------------------|
| 1. 30, 300 | 43. $6x + 9$ |
| 2. 40, 400 | 44. $-6 + 9x$ |
| 3. 50, 500 | 45. $-30x + 12$ |
| 4. 60, 600 | 46. $10 - 18x$ |
| 5. 70, 700 | 47. $-4x + 10$ |
| 6. 80, 800 | 48. $24x + 12$ |
| 7. 90, 900 | 49. $18x + 10$ |
| 8. 1, 10 | 50. $-6 + 16x$ |
| 9. 2, 20 | 51. $-3x - 7$ |
| 10. 3, 30 | 52. $-2x + 6$ |
| 11. 0.0009 | 53. $38x + 2$ |
| 12. 0.012 | 54. $8x - 2$ |
| 13. 0.0016 | 55. $8x - 19$ |
| 14. 0.1 | 56. $-8x + 3$ |
| 15. 0.00004 | 57. $-13x - 8$ |
| 16. 0.0006 | 58. $-2x - 4$ |
| 17. 0.0014 | 59. $22x - 27$ |
| 18. 0.018 | 60. $9x - 12$ |
| 19. 0.008 | 61. 6 |
| 20. 0.06 | 62. 4 |
| 21. 10 | 63. 3 |
| 22. 8 | 64. 2 |
| 23. 6 | 65. -5 |
| 24. 18 | 66. -2 |
| 25. 90 | 67. 7 |
| 26. 6 | 68. 3 |
| 27. 1.4 | 69. 5 |
| 28. 12 | 70. 3 |
| 29. 40 | 71. 4 |
| 30. 1.6 | 72. $\frac{2}{7}$ |
| 31. 0.5 | 73. $\frac{3}{5}$ |
| 32. 4.5 | 74. $\frac{2}{3}$ |
| 33. 19.5 | 75. $\frac{4}{5}$ |
| 34. 24.5 | 76. $\frac{7}{8}$ |
| 35. 29.5 | 77. $\frac{4}{3}$ |
| 36. 34.5 | 78. $\frac{8}{5}$ |
| 37. 39.5 | 79. $\frac{-6}{7}$ |
| 38. 44.5 | 80. $\frac{-2}{5}$ |
| 39. 49.5 | |
| 40. 59.5 | |
| 41. $6 + 42x$ | |
| 42. $6x - 8$ | |

MAP 265 (T3) Issue 8

- 81. $x = -5$
- 82. $7/3$
- 83. $x = -7$
- 84. $x = 4$
- 85. $x = -2$
- 86. $x = 2$
- 87. $x = 1$
- 88. $x = -3$
- 89. 3
- 90. $x = 1$
- 91. 8
- 92. 7
- 93. 9
- 94. 8
- 95. 3

- 96. 8
- 97. 9
- 98. -5
- 99. $-1/2$
- 100. -9
- 101. $4x^2 - 6x - 6$
- 102. $-x^2 - 17x - 12$
- 103. $-10x^2 + 2x - 8$
- 104. $-6x^2 - 4x - 6$
- 105. $15 - 10x$
- 106. $10x - 20$
- 107. $4x - 8$
- 108. $-2x + 1$
- 109. $15x^2 + 5x - 10$
- 110. $2x^2 - 18x - 18$

Answer Key

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

MAP 285 (T3) Issue 8

69. $(3x + 7)(4x + 5) = 0$
 $x = -7/3$ or $-5/4$

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

71. Let: $y = \log x$
 $(y - 10)(y - 1) = 0$
 $x = 10$ or 10^{10}

72. $x = 0.001$ or 10

73. $(2\log x - 1)(\log x + 3) = 0$
 $x = \sqrt{10}$ or 0.001

74. $3x - 2 = 100$
 $x = 34$

75. $x = \frac{1}{2}(5x - 6)$
 $2x = 5x - 6$
 $x = 2$

76. $x = x^2 - 2$
 $x^2 - x - 2 = 0$
 $(x - 2)(x + 1) = 0$
 $x = 2$ (-1 invalid, why?)

77. $x(x - 9) = 10$
 $x = 10$ (1 invalid)

78. $\frac{\log_2 x}{2} = \frac{\log_2 2x}{3}$
 $3 \log_2 x = 2 \log_2 2x$
 $3 \log_2 x = 2(1 + \log_2 x)$
 $\log_2 x = 2$
 $x = 4$

79. $(3 - x)(3 + x) = 1$
 $9 - x^2 = 1$
 $x = \pm\sqrt{8}$

80. $x = 9$

81. $x + 2 = 4^{\frac{5}{3}} = \sqrt[3]{1024}$
 $x = \sqrt[3]{1024} - 2$

82. $x^2 + 2x - 3 = 0$
 $(x - 1)(x + 3) = 0$
 $x = 1$ (-3 invalid)

83. $x^2 - 8x - 2 = 0$
 $x^2 - 8x + 16 = 14$
Both $4 + \sqrt{14}$ and $4 - \sqrt{14}$ are invalid.
No solution.

84. $\frac{x}{x-7} = 8$
 $8x - 56 = x$
 $7x = 56$
 $x = 8$

85. $x - 1 = 16$ or 0
 $x = 17$ or 1

86. $(\log_2 x - 3)(\log_2 x + 1) = 0$
 $x = 8$ or $\frac{1}{2}$

87. $\frac{x}{x-3} = 9$
 $9x - 27 = x$
 $8x = 27$
 $x = \frac{27}{8}$

88. $x + 1 = 10(x - 1)$
 $9x = 11$
 $x = \frac{11}{9}$

89. $2x + 1 = 10(x - 2)$
 $8x = 21$
 $x = \frac{21}{8}$

90. $x + 3 = x(x - 1)$
 $x^2 - 2x - 3 = 0$
 $(x - 3)(x + 1) = 0$
 $x = 3$ (-1 invalid)