

Answer Key

- | | |
|-------------------|--|
| 1. N/A | 43. 6 |
| 2. N/A | 44. 7 |
| 3. N/A | 45. 21 |
| 4. N/A | 46. 8 |
| 5. N/A | 47. 9 |
| 6. N/A | 48. 13 |
| 7. N/A | 49. 14 |
| 8. N/A | 50. 10 |
| 9. N/A | 51. 4.1 |
| 10. N/A | 52. 1.1 |
| 11. $\frac{1}{2}$ | 53. 3.3 |
| 12. $\frac{3}{4}$ | 54. 5.8 |
| 13. $\frac{3}{4}$ | 55. 4.6 |
| 14. 1 | 56. 3.1 |
| 15. $\frac{3}{4}$ | 57. 9.7 |
| 16. $\frac{2}{3}$ | 58. 9.2 |
| 17. 1 | 59. 6 |
| 18. $\frac{2}{3}$ | 60. 1 |
| 19. $\frac{1}{2}$ | 61. 16 |
| 20. $\frac{1}{3}$ | 62. 13 |
| 21. $\frac{2}{7}$ | 63. 30 |
| 22. $\frac{3}{8}$ | 64. 19 |
| 23. $\frac{3}{8}$ | 65. 18 |
| 24. $\frac{3}{8}$ | 66. 24 |
| 25. $\frac{3}{8}$ | 67. 29 |
| 26. $\frac{4}{8}$ | 68. 13 |
| 27. $\frac{4}{8}$ | 69. 15 |
| 28. $\frac{4}{8}$ | 70. 18 |
| 29. $\frac{4}{8}$ | 71. A=1, B=4, C=5
Ans=1 (for A) & 4 (for B) & 5 (for C) |
| 30. $\frac{3}{7}$ | 72. A=6, B=2, C=6
Ans=6 (for A) & 2 (for B) & 6 (for C) |
| 31. 8 | 73. A=3, B=3, C=2
Ans=3 (for A) & 3 (for B) & 2 (for C) |
| 32. 60 | 74. A=1, B=7, C=2
Ans=1 (for A) & 7 (for B) & 2 (for C) |
| 33. 6 | 75. A=6, B=2, C=9
Ans=6 (for A) & 2 (for B) & 9 (for C) |
| 34. 120 | 76. A=8, B=5, C=6
Ans=8 (for A) & 5 (for B) & 6 (for C) |
| 35. 6 | 77. A=2, B=7, C=9
Ans=2 (for A) & 7 (for B) & 9 (for C) |
| 36. 80 | 78. A=5, B=5, C=2
Ans=5 (for A) & 5 (for B) & 2 (for C) |
| 37. 8 | |
| 38. 60 | |
| 39. 3 | |
| 40. 15 | |
| 41. 12 | |
| 42. 22 | |

MAP 225 (T3) Issue 1

79. $A=3, B=6, C=7$

Ans=3 (for A) & 6 (for B) & 7 (for C)

80. $A=1, B=5, C=0$

Ans=1 (for A) & 5 (for B) & 0 (for C)

81. 2

82. 7

83. 8

84. 4

85. 5

86. 6

87. 7

88. 6

89. 8

90. 9

91. $6 \times 30 = 180$

92. $20 \times 5 = 100$

93. (a) $3 \times 3 = 9$

(b) $15 \div 3 = 5$

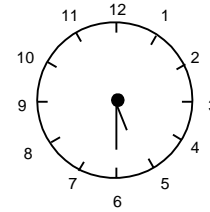
94. $5 + 5 = 10$

Ans = 5

95. $25 + 19 = 44$

96. $6 \times 50 = 300$

97. The time is $4:45 + 0:45 = 5:30$.



98. $15 \div 3 = 5$

99. $32 \div 4 = 8$

100. $9 + 20 + 30 = 59$

Answer Key

- | | |
|-------------------------|--|
| 1. 6 | 43. 32 |
| 2. 78 | 44. 50 |
| 3. 6 | 45. 20 |
| 4. 69 | 46. 4 |
| 5. 4 | 47. 7 |
| 6. 124 | 48. 8 |
| 7. 3 | 49. 8 |
| 8. 87 | 50. 9 |
| 9. 15 | 51. 0.84 |
| 10. 85 | 52. 0.88 |
| 11. 6 | 53. 0.92 |
| 12. 102 | 54. 0.96 |
| 13. 18 | 55. 0.06 |
| 14. 114 | 56. 0.12 |
| 15. 3 | 57. 0.18 |
| 16. 84 | 58. 0.24 |
| 17. 6 | 59. 0.3 |
| 18. 87 | 60. 0.36 |
| 19. 25 | 61. $44/100 = 11/25$ |
| 20. 115 | 62. $48/100 = 12/25$ |
| 21. 2 (GCF) & 42 (LCM) | 63. $52/100 = 13/25$ |
| 22. 5 (GCF) & 30 (LCM) | 64. $56/100 = 14/25$ |
| 23. 5 (GCF) & 70 (LCM) | 65. $60/100 = 3/5$ |
| 24. 5 (GCF) & 140 (LCM) | 66. $64/100 = 16/25$ |
| 25. 6 (GCF) & 120 (LCM) | 67. $68/100 = 17/25$ |
| 26. 8 (GCF) & 48 (LCM) | 68. $72/100 = 18/25$ |
| 27. 6 (GCF) & 84 (LCM) | 69. $76/100 = 19/25$ |
| 28. 7 (GCF) & 84 (LCM) | 70. $80/100 = 4/5$ |
| 29. 5 (GCF) & 100 (LCM) | 71. $47 + 45 = 92$ |
| 30. 9 (GCF) & 54 (LCM) | 72. $14 - 6 = 8$ |
| 31. 3 | 73. $96 \div 3 = 32$ |
| 32. 21 | $96 - 32 = \underline{64}$ |
| 33. 20 | 74. $60 \times \frac{3}{4} = 45$ |
| 34. 15 | 75. $3 \times 4 = 12$ (glitters) |
| 35. 6 | 76. $15 \times 2 = \$30$ |
| 36. 3 | 77. $120 \times 4 = \$480$ |
| 37. 7 | 78. $360 \times 10 = 3600$ |
| 38. 8 | 79. $65 \times 4 = 260$ mi |
| 39. 8 | 80. $250 \times 8 = 500 \times 4 = \underline{2000}$ |
| 40. 9 | 81. $2 + 2 \times 1.5 = \$5$ |
| 41. 8 | 82. 2 quarters & 2 nickels & 2 pennies |
| 42. 30 | |

MAP 235 (T3) Issue 1

	A	B	C
1	c	a	b
2	b	c	a

83.

a is Alice's cat. b is
Breda's cat. c is
Cathy's cat.

Ans = 2 ways only

84. $2 \times 21.9 = 43.8$

$$50 - 43.8 = 6.2$$

$$3 \times 6.2 = 18.6 < 21.9$$

So, \$6.20 not enough for one more shirt.

Ans = 6 T-shirts & \$6.20 in change

85. $2 \times 3 = 6$

$$6 \times 13 = 78 \text{ (not enough)}$$

$$6 \times 14 = 84 \text{ (good to go)}$$

Ans = 14 weeks

86. $2.5 \times 24 = 5 \times 12 = 60$

$$60 \div 2 = \boxed{30}$$

87. $2 \times 1.75 = 3.5$

$$3.5 \times 6 = 21 \text{ (a bit over budget)}$$

$$2 \times 6 = 12$$

$$12 - 1 = \underline{11 \text{ cans}}$$

88. 20

89. 20

90. B

$$20 - 2 = 18$$

$$18 \div 3 = 6$$

$$6 + 1 = 7$$

Tuesday

Answer Key

- | | |
|--------------------------------------|---|
| 1. 24 | 43. 54 (A) & 9 (B) & 6 (C) & 2 (D) |
| 2. 27 | 44. 48 (A) & 6 (B) & 7 (C) & 2 (D) |
| 3. 36 | 45. 200 (A) & 10 (B) & 7 (C) & 4 (D) |
| 4. 28 | 46. $\frac{25}{48}$
GCF = 4, LCM = 48 |
| 5. 270 | 47. $\frac{73}{120}$
GCF = 4, LCM = 120 |
| 6. 24 | 48. $\frac{13}{72}$
GCF = 2, LCM = 72 |
| 7. 2.1 | 49. $\frac{11}{36}$
GCF = 2, LCM = 36 |
| 8. 1.5 | 50. $\frac{23}{70}$
GCF = 4, LCM = 140 |
| 9. 100 | 51. $\frac{3}{350}$
GCF = 5, LCM = 350 |
| 10. 56 | 52. $\frac{1}{48}$
GCF = 4, LCM = 48 |
| 11. 132 | 53. $\frac{1}{60}$
GCF = 5, LCM = 60 |
| 12. 156 | 54. $\frac{1}{48}$
GCF = 4, LCM = 48 |
| 13. 182 | 55. $\frac{1}{48}$
GCF = 4, LCM = 48 |
| 14. 210 | 56. $\frac{2}{3}$ |
| 15. 240 | 57. 6 |
| 16. 272 | 58. 12 |
| 17. 306 | 59. 2 |
| 18. 209 | 60. 11 |
| 19. 342 | 61. 3 |
| 20. 198 | 62. $\frac{1}{2}$ |
| 21. 0.1 | 63. $\frac{1}{4}$ |
| 22. 60 | 64. $\frac{4}{5}$ |
| 23. 0.04 | 65. $\frac{4}{5}$ |
| 24. 0.0008 | 66. 4 in (A) & 12 in (B) & 5 in (C) & 8 in (D) |
| 25. 150 | 67. 8 in (A) & 6 in (B) & 8 in (C) & 9 in (D) |
| 26. 2000 | 68. 4 in (A) & 9 in (B) & 7 in (C) & 5 in (D) |
| 27. 0.03 | 69. 6 in (A) & 7 in (B) & 5 in (C) & 4 in (D) |
| 28. 0.0012 | 70. 15 in (A) & 9 in (B) & 2 in (C) & 5 in (D) |
| 29. 0.1 | 71. $432 \div 27 = 16$ gal |
| 30. 160 | 72. $10 \times \frac{1}{5} \times 8 \times 5 = \80.00 |
| 31. 39 | |
| 32. 45 | |
| 33. 38 | |
| 34. 46 | |
| 35. 52 | |
| 36. 56 | |
| 37. 51 | |
| 38. 57 | |
| 39. 50 | |
| 40. 58 | |
| 41. 48 (A) & 4 (B) & 9 (C) & 3 (D) | |
| 42. 160 (A) & 10 (B) & 2 (C) & 8 (D) | |

MAP 255 (T3) Issue 1

73. A
 $3.0 \div 12 = \$0.25$ per ounce (12-ounce cheaper)
 $5.4 \div 18 = \$0.30$ per ounce

74. $240 \div 60 = 4$ (hr)
 $4 - 1 = 3$ hr (expected)
 $240 \div 3 = 80$ mph
 $80 - 60 = 20$ mph faster

75. $400 \times 4 \times 0.1 = \160

76. $\frac{14}{3\frac{1}{2}} = 4$ hr

77. $\frac{30-21}{30} = 0.3 = 30\%$

78. $15 \div 0.75 = 20$
 $20 \times 4 = 80$ packets

79. B
 $42.00 \div 600 = \$0.07$ per kilowatt
 $48.00 \div 800 = \$0.06$ per kilowatt (the second cheaper)

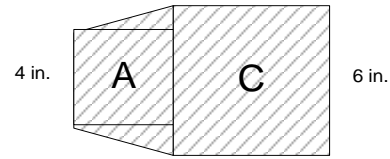
80. $2\frac{5}{6} = \frac{17}{6}$
 $\frac{17}{6} \div \frac{1}{6} = 17$

81. $1 - 20\% = 1 - 0.2 = 0.8$
 $200 \times 0.8 = 160$

82. C

83. $125 \div 2.5 = 50$
 $50 \times 8 = 400$ mi

84. $\frac{1}{2}(4+6)(4) = 20$ in² (area of trapezoid)
 $6^2 = 36$ in² (square area)
 $20 + 36 = 56$ in² (total)



85. $24.5 \div 7 = 3.5$
 $3.5 \times 12 = 42$ in

86. 192

87. R=5, S=6, T=7

$$\begin{array}{r}
 5 6 7 \\
 \times 7 4 1 \\
 \hline
 5 6 7 \\
 2 2 6 8 \\
 3 9 6 9 \\
 \hline
 4 2 0 1 4 7
 \end{array}$$

Ans = 5 (R) & 6 (S) & 7 (T)

88. 2 (the only prime that is even)

89. $24 \times 25\% = 24 \times \frac{1}{4} = 6$ hr

90. $200 - 100 = 100$

$$199 - 99 = 100$$

...

$$101 - 1 = 100$$

$$100 + 100 + \dots + 100 = 100 \times 100$$

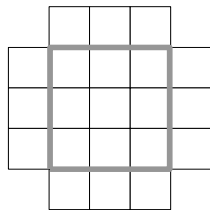
$$\text{Ans} = 100$$

Answer Key

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|----------------|--|
| 1. -20 | 43. $1/16$ |
| 2. -7 | 44. 2 |
| 3. -14 | 45. $2/3$ |
| 4. -12 | 46. $16/625$ |
| 5. -12 | 47. $4/5$ |
| 6. -6 | 48. -2 |
| 7. -2 | 49. 10000 |
| 8. -7 | 50. 5 |
| 9. -4 | 51. -2 |
| 10. -5 | 52. $5/2$ |
| 11. $7x - 7$ | 53. 2 |
| 12. $-5x - 9$ | 54. $1/2$ |
| 13. $4x - 2$ | 55. 8000 |
| 14. $-2x + 6$ | 56. 64000 |
| 15. $10x - 21$ | 57. -1 |
| 16. $-6x + 2$ | 58. $121/100$ |
| 17. $-18x - 9$ | 59. 2 |
| 18. $4x + 2$ | 60. -1 |
| 19. $-4x + 20$ | 61. (a) $1/5$ (b) $2/5$ (c) $3/5$ (d) $4/5$ |
| 20. $38x + 11$ | 62. B |
| 21. 72 | 63. A |
| 22. -5 | 64. $\frac{1}{4} = \boxed{25\%}$ |
| 23. 80 | 65. $52.50 - 50 = \$2.50$ |
| 24. -18 | 66. $2.50 \div 50 = 5\%$ |
| 25. 42 | 67. $200 \times 10\% = \$20.00$ (tax)
$200 + 20 = \$220.00$ (after tax) |
| 26. 4 | 68. $60 + 3 = \$63.00$ |
| 27. -12 | 69. $(127.20 - 120) \div 120 = 0.06 = 6\%$ |
| 28. 33 | 70. tax rate = $\frac{\text{tax}}{\text{price}} = \frac{1500}{75000} = 0.02 = 2\%$ |
| 29. 2 | 71. $50 \times 5\% = 50 \times 0.05 = \2.50 |
| 30. 20 | 72. $30 \div 5\% = 30 \div 0.05 = 3000 \div 5 = \600 |
| 31. 8 | 73. $400 \times 15\% = 400 \times 0.15 = 4 \times 15 = \60 |
| 32. $1/2$ | 74. $20\% = 0.2$
$3750 \times 0.2 = \$750.00$ |
| 33. 8 | 75. $30 \div 5\% = 30 \div 0.05 = 3000 \div 5 = 600$ |
| 34. 9 | 76. D |
| 35. 4 | Chapter A: $75\% = \frac{3}{4} = \frac{24}{36}$ |
| 36. $1/1024$ | Chapter B: $\frac{7}{9} = \frac{28}{36}$ |
| 37. 2 | Chapter C: $\frac{31}{36}$ |
| 38. $1/2$ | 77. $\frac{\text{tax}}{\text{cost without tax}} = \frac{54-50}{50} = \frac{4}{50} = 8\%$ |
| 39. $1/2$ | 78. $1 - 20\% = 0.8$
$90 \times 0.8 = 72$ mph |
| 40. 8 | |
| 41. 25 | |
| 42. 8 | |

MAP 260 (T3) Issue 1

79. $47 \text{ yards} = 141 \text{ ft}$
 $141 - 95 = 46$
80. $2500 \div 10 \times 3$
 $= 750 \text{ hours}$
81. $2\frac{2}{3} \times 60 = 120 + 40 = 160 \text{ (min)}$
82. $26 \times 26 \times 10 \times 10 \times 10 = 676000$
83. $26 \times 25 = 650$
 $10 \times 9 \times 8 = 720$
 $650 \times 720 = 468000$
84. $5 \times 26 \times 9 \times 10 \times 10 = 117000$
85. $5 \times 25 \times 9 \times 9 \times 8 = 81,000$
86. $5 \times 4 \times 3 \times 2 \times 1 = 120 \text{ ways}$
87. $\frac{35}{5} \times 8 = 7 \times 8 = \56.00
88. Archer B
 (archer A) $\frac{5}{6} = \frac{35}{42} < \frac{36}{42} = \frac{6}{7}$ (archer B). Thus, archer B is better at shooting.
89. $54 \div 6 = 9$
 $9 \times 5 = 45 \text{ (girls)}$
 $9 \times 11 = 99 \text{ (students)}$
90. $35 \times \frac{5}{7} = 25 \text{ gallons}$
91. $35 \times \frac{2}{7} = 10 \text{ gallons}$
92. $28 \div (2 + 5) = 4 \text{ quarts}$
 $2 \times 4 = 8 \text{ gallons} = 32 \text{ quarts}$
93. $1\frac{1}{4} : 2\frac{1}{2} = 1:2$
 $3 \times 2 = 6 \text{ cups}$
94. B
 $312 \div 6 = 52 \text{ mph (car)}$
 $\frac{376}{7} = 53 \text{ mph (truck)}$
95. $60 - 32 = 28$
 $28 \div 4 = 7 \text{ hr}$
96. Let x be the ones digit, the tens digit is $x+2$, and the hundreds digit is $x+3$. Since the sum of the tens and hundreds digits is $x+2+x+3 = 2x+5$, which is three times the ones digit, so we have
 $2x+5 = 3x$
 $\Rightarrow x = 5$
 Ans = 875
97. There are 21 one-by-one's.
 There are $4 + 2 \times 4 = 12$ two-by-two's
 There are $1 + 1 \times 4 = 5$ three-by-three's
 Ans = 38 squares in total



98. B
 $9 \times 10^5 \times 5 = 4,500,000$
99. B
 They are 5 min apart every 2 hours.
 To be 60 min ahead, it takes
 $60 \div 5 \times 2 = 24 \text{ hours.}$
100. $372 - 307 = 65 \text{ (miles per hour)}$
 $242 - 3 \times 65 = 242 - 195 = 47 \text{ mi left}$
101. $2 \text{ ft} = 24 \text{ in}$
 $3 \text{ ft} = 36 \text{ in}$
 $(24 \div 2) \times (36 \div 3) = 12 \times 12 = 144$
102. $65 \frac{\text{mile}}{\text{hour}} = 65 \frac{5280 \text{ft}}{60 \times 60 \text{sec}} = 95\frac{1}{3} = 95 \frac{1}{3} \text{ ft/sec}$
103. $1 \frac{\text{g}}{\text{ml}} = 1 \frac{0.001 \text{kg}}{0.001 \text{l}} = \frac{0.001 \times 2.205 \text{lb}}{0.001 \text{l}} = 2.205 \text{ lb per liter}$
104. $1 \text{ mile}^2 = 640 \text{ acres}$
 $1 \text{ acre} = \frac{1}{640} \text{ mile}^2 = \frac{1}{640} \text{ mile}^2 = \frac{2560000}{640} \text{ m}^2 = 4,000 \text{ m}^2$
105. Method I) Dynamic

Trial	Dime	Nickle	Penny	Tot#
#1		20		20
#2		19	5	24
#3	3	13	5	21
#4	3	12	10	25
#5	7	4	10	21

Method II) Algebraic
 Here is the solution using number theory of semi-group.
 $d + n + p = 21 \dots \textcircled{1}$ (number of coins)
 $10d + 5n + p = 100 \dots \textcircled{2}$ (value of the coins)
 $9d + 4n = 79 \text{ (}\textcircled{2} - \textcircled{1}\text{)}$
 $8d + d + 4n = 79$
 $4(2d + n) = 79 - d \text{ (a 4-multiple)}$
 $d = 3, 7, 11, \dots$
 $d = 3, n = 13, p = 5$
 $d = 7, n = 4, p = 10$
 Ans = 3 D & 13 N & 5 P & 7 D & 4 N & 10 P

Answer Key

1. $y = x + 4$
2. $y = 2x + 4$
3. $y = \frac{-2}{3}x + 2$
4. $y = -2x + 6$
5. $y = -2x - 2$
6. $y = \frac{-2}{3}x - 2$
7. $y = 4$
8. $\frac{x}{6} + \frac{y}{8} = 1$
x-intercept = 6 and y-intercept is 8.
9. x-intercept ($y = 0$) $12 \div 8 = 1.5$
y-intercept ($x = 0$) $12 \div -3 = -4$
10. Slope = $-\frac{3}{4}$, x-intercept = 4, y-intercept = 3
11. $2(x + 3)(4x + 5) = 0$
 $x = -3$ or $\frac{-5}{4}$
12. $3(x + 5)(4x + 3) = 0$
 $x = -5$ or $\frac{-3}{4}$
13. $8(2x + 3)(2x - 5) = 0$
 $x = \frac{5}{2}$ or $\frac{-3}{2}$
14. $(2x - 3)(3x + 14) = 0$
 $x = \frac{3}{2}$ or $\frac{-14}{3}$
15. $2(x + 6)(6x + 7) = 0$
 $x = -6$ or $\frac{-7}{6}$
16. a) 50
b) -382
c) 12 mons
17. a) 225
b) 10,125
18. a) 1000
b) -35,000
19. a) 16
b) 736
20. a) 200
b) 200,000
21. a) 400
b) 7700
22. a) 12
b) 44.23 B
23. $t = 2$
24. a) 4
b) 2
c) 64
25. (9, 729)
26. 6, 9
27. -0.8, 0.16
28. $(2x + 9)^2$
29. $(4x + 1)^2$
30. 1, $(5x - 1)^2$
31. 36, -72, 26
32. 4, -48, 3
33. 64, -96, 11
34. 64, 96, 17
35. 16, 80, 15
36. 5, 1, -0.2, 3.8
37. 5, 2, -1, 14
38. 5, 1, -4, -61
39. 6, 2, -1, 20
40. 7, 1, -2, -3
41. 50
42. 34
43. 87.5
44. $6\sqrt{10}$
45. $11\sqrt{13}$
46. $10\sqrt{17}$
47. $2\sqrt{26}$
48. $3.5\sqrt{29}$
49. $6\sqrt{34}$
50. $11\sqrt{41}$