

Answer Key

1. $\frac{19}{2}$
 $9 \times 2 + 1 = 19$
2. $\frac{23}{10}$
 $2 \times 10 + 3 = 23$
3. $\frac{26}{3}$
 $8 \times 3 + 2 = 26$
4. $\frac{37}{4}$
 $9 \times 4 + 1 = 37$
5. $\frac{40}{3}$
 $13 \times 3 + 1 = 40$
6. $\frac{33}{4}$
 $8 \times 4 + 1 = 33$
7. $\frac{21}{5}$
 $4 \times 5 + 1 = 21$
8. $\frac{19}{6}$
 $3 \times 6 + 1 = 19$
9. $\frac{41}{6}$
 $6 \times 6 + 5 = 41$
10. $\frac{57}{8}$
 $7 \times 8 + 1 = 57$
11. $6\frac{2}{3}$
 $20 \div 3 = 6 \text{ r } 2$
12. $7\frac{1}{3}$
 $22 \div 3 = 7 \text{ r } 1$
13. $5\frac{2}{3}$
 $17 \div 3 = 5 \text{ r } 2$
14. $13\frac{1}{3}$
 $40 \div 3 = 13 \text{ r } 1$
15. $4\frac{1}{4}$
 $17 \div 4 = 4 \text{ r } 1$
16. $8\frac{3}{4}$
 $35 \div 4 = 8 \text{ r } 3$
17. $10\frac{1}{4}$
 $41 \div 4 = 10 \text{ r } 1$
18. $3\frac{1}{5}$
 $16 \div 5 = 3 \text{ r } 1$
19. $7\frac{2}{5}$
 $37 \div 5 = 7 \text{ r } 2$
20. $4\frac{1}{6}$
 $25 \div 6 = 4 \text{ r } 1$
21. $4\frac{5}{6}$
 $29 \div 6 = 4 \text{ r } 5$
22. $8\frac{1}{3}$
 $25 \div 3 = 8 \text{ r } 1$
23. $8\frac{2}{3}$
 $26 \div 3 = 8 \text{ r } 2$
24. $5\frac{1}{4}$
 $21 \div 4 = 5 \text{ r } 1$
25. $7\frac{3}{4}$
 $31 \div 4 = 7 \text{ r } 3$
26. $4\frac{1}{5}$
 $21 \div 5 = 4 \text{ r } 1$
27. $3\frac{3}{5}$
 $18 \div 5 = 3 \text{ r } 3$
28. $5\frac{1}{6}$
 $31 \div 6 = 5 \text{ r } 1$
29. $2\frac{1}{10}$
 $21 \div 10 = 2 \text{ r } 1$
30. $4\frac{7}{10}$
 $47 \div 10 = 4 \text{ r } 7$
31. $\{1, 5, 25\}$
32. $\{1, 3, 7, 21\}$
33. $\{1, 2, 11, 22\}$
34. $\{1, 2, 13, 26\}$
35. $\{1, 3, 9, 27\}$
36. $\{1, 2, 3, 4, 6, 12\}$
37. $\{1, 2, 4, 5, 10, 20\}$
38. $\{1, 2, 4, 8, 16, 32\}$
39. $\{1, 2, 4, 7, 14, 28\}$
40. $\{1, 2, 3, 5, 6, 10, 15, 30\}$
41. $1 \frac{1}{2}$
42. $2 \frac{3}{4}$
43. $1 \frac{1}{4}$
44. $4 \frac{4}{5}$

MAP 230 (T2) Issue 5

45. $4\frac{3}{5}$

46. $3\frac{2}{5}$

47. $2\frac{7}{8}$

48. $19\frac{5}{8}$

49. $1\frac{3}{8}$

50. $4\frac{1}{8}$

51. $\frac{4}{8} = \frac{1}{2}$

52. $\frac{5}{7}$

53. $\frac{7}{10}$

54. 1

55. $\frac{7}{8}$

56. $\frac{7}{8}$

57. 1 whole

58. $\frac{8}{10} = \frac{4}{5}$

59. $3\frac{1}{6}$

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

61. 45

62. 40

63. 56

64. 18

65. 42

66. 35

67. 63

68. 27

69. 45

70. 64

71. $33 - 1 = 32$

$32 \div 4 = 8$

Tuesday + 8 = Wednesday

72. Every five students will form a group:

B, B, G, G, and R,

which will repeat by itself.

(a) red

(b) $20 \div 5 = 4$ (groups), $4 \times 2 = 8$ students

73. $6 \div 3 = 2$

$100 \div 2 = \$50$

74. (a) $76 - 13 = 63$

(b) $71 - 63 = 8$

75. $1 + 2.2 = 3.2$

$3.2 \div 2 = \$1.60$

76. (a) $12 \times 2 = 24$ (Maura)

(b) $24 + 16 = 40$ (Michael)

77. $8 \times 5 \times 12 = 40 \times 12 = 480$

78. $12 \times 5 = 60$ sq. inches

79. $91 - 67 = \$24$

80. $231 - 11 = 220$

$220 \div 2 = 110$ lbs

81. $5 \times 2 + 4 \times 20 = 90$ feet

82. $81 - 27 = 54$

83. $104 + 28 = 132$ pounds

84. $611 - 214 = 397$

85. $48 \times 5 = 240$

86. $5:15 - 4:30 = 0:45 = 45$ min

87. $39 + 23 = 62$ mi

$39 + 62 = 101$ mi

88. 5 (Anne)

$5 - 3 = 2$ (Ellie)

$5 + 2 + 1 = 8$ (Laura)

$5 + 2 + 8 = 15$ (all)

89. See the filled table below.

5	10	3
4	6	8
9	2	7

(a) 10 (A)

(b) 3 (B)

(c) 8 (C)

(d) 9 (D)

(e) 2 (E)

90. See the filled table below.

12	3	5	6
10	11	4	1
2	8	9	7

(a) 3 (A)

(b) 10 (B)

(c) 4 (C)

(d) 1 (D)

(e) 2 (E)

91. $1200 \div 3 = 400$

92. $25 \times 25 \times 4$
 $= 25 \times 100$
 $= \underline{2500}$

93. 332

94. $56 \div 8 = 7$

95. 7

96. 12

97. C

98. \$16.04

99. $\frac{1}{2} = 1/2$

100. $\frac{1}{4} = 1/4$ pizza

101. $\frac{1}{12} = 1/12$ each

MAP 230 (T2) Issue 5

102. $\frac{7}{12} = 7/12$ pizza

103. C (City Hall)& D (Tim's House)& A (School)

104. $12 \times 8 = 96$

105. $12 - 8 = \boxed{4 \text{ inches}}$

106. C

107. $3 \times 30 - (25 + 35) = \underline{30\text{¢}}$

108. B

109. \$16.00 (Josh) & \$18 (Melanie)

110. $1.35 + 2.65 = 4$

$4 \div 2 = \underline{\$2.00}$

Answer Key

- | | |
|-------------------|-----------------------------|
| 1. 2 | 40. $\frac{3}{8}$ |
| 2. 5 | 41. $\frac{2}{3}$ |
| 3. 8 | 42. $\frac{3}{4}$ |
| 4. 9 | 43. $\frac{4}{5}$ |
| 5. 5 | 44. $\frac{3}{7}$ |
| 6. 50 | 45. $\frac{2}{9}$ |
| 7. 20 | 46. 8.5 |
| 8. 0.4 | 47. 2.5 |
| 9. 5 | 48. 5.5 |
| 10. 6 | 49. 10.5 |
| 11. 4 | 50. 3.25 |
| 12. 50 | 51. 4.75 |
| 13. 70 | 52. 7.5 |
| 14. 30 | 53. 9.25 |
| 15. 300 | 54. 5.25 |
| 16. 800 | 55. 2.25 |
| 17. 500 | 56. $2\frac{1}{4}$ |
| 18. 0.25 | 57. $3\frac{1}{4}$ |
| 19. 0.9 | 58. $6\frac{1}{2}$ |
| 20. 0.7 | 59. $5\frac{1}{10}$ |
| 21. 28 | 60. $1\frac{1}{4}$ |
| 22. 54 | 61. $\frac{1}{11}$ |
| 23. 25 | 62. 0.375 |
| 24. 24 | 63. 0.36 |
| 25. 27 | 64. .012 |
| 26. 21 | 65. 0.12 |
| 27. 32 | 66. 840 |
| 28. 27 | 67. 6 |
| 29. 25 | 68. 20% |
| 30. 24 | 69. 16% |
| 31. $\frac{1}{5}$ | 70. 8% |
| 32. $\frac{2}{5}$ | 71. D |
| 33. $\frac{5}{7}$ | 72. A |
| 34. $\frac{7}{8}$ | 73. A |
| 35. $\frac{6}{7}$ | 74. B |
| 36. $\frac{2}{7}$ | 75. B |
| 37. $\frac{8}{9}$ | 76. Dean, Abe, Chuck, Brian |
| 38. $\frac{1}{2}$ | 77. D |
| 39. $\frac{1}{3}$ | |

MAP 240 (T2) Issue 5

78. D

79. B

80. B

81. D

82. wb, wg, wt, sb, sg, st, cb, cg, ct

83. $9 = 3 \times 3$

84. C

85. B

86. D

87. B

88. D

Both groups are quadrilaterals with four right angles.

89. C

90. B

91. A

Roboprint (fastest) prints 120 pages

Voltronn prints 30 pages

Vantek Plus prints 80 pages

DLS Pro prints 100 pages

92. $160 \div 10 = 16$

$256 \div 16 = 16$ gal

93. $1 + 11 + 11 + 1 = 24$

$1 + 1 + 11 + 11 = 24$

$1 + 11 + 1 + 11 = 24$

$11 + 11 + 1 + 1 = 24$

$11 + 1 + 11 + 1 = 24$

$11 + 1 + 1 + 11 = 24$

Ans = 6 ways

94. $40 \div 5 = 8$

$8 \times 2 = 16$

95. $6,000,000 \times 10\% = 6,000,000 \times 0.1 = \$600,000$

96. $16 \times \frac{3}{2} = 24$

97. $30 \div \frac{3}{5} = 50$

98. $99 \times 4 + 1 = 397$

99. (a) $(30+6) \div 2 = \$18.00$ (Carl)

(b) $(30-6) \div 2 = \$12.00$ (Dave)

100. B

$$\begin{aligned} & \frac{40}{60} \times 15 \\ &= \frac{2}{3} \times 15 \\ &= 10 \text{ leaps} \end{aligned}$$

101. $2(10^2\pi) = 628 \text{ cm}^2$ (two circles)

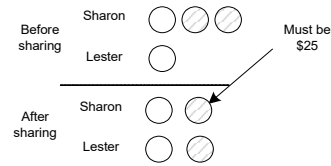
$20\pi = 62.8 \text{ cm}$ (circumference)

$62.8 \times 30 = 1884 \text{ cm}^2$ (lateral surface)

$1884 + 628 = 2512 \text{ cm}^2$ (total surface)

102. \$75 (Sharon) & \$25 (Lester)

(See the following figure.)



103. $6 \times 2 = 12$ different outcomes

(1, H), (1, T),

(2, H), (2, T),

(3, H), (3, T),

(4, H), (4, T),

(5, H), (5, T),

(6, H), (6, T).

104. $3 - 5 + 7 = 5$

$5 + 7 = 12$

$12 + 1 + 12 = 25$

105. D

$m + n + q = (2 + 1 + 3)n = 180$

$n = 30, m = 60, q = 90$

Right triangle

Answer Key

1. $1\frac{5}{6}$
2. $\frac{2}{9}$
3. $\frac{5}{6} \times 24 = 20 = 20$
4. $6 \times \frac{4}{30} = \frac{4}{5}$
5. $12 \times 5 / 36 \times 6 = 10$
6. $\left(\frac{9}{4}\right)\left(\frac{20}{3}\right) = 15$
7. $\left(\frac{21}{8}\right)\left(\frac{24}{7}\right) = 9$
8. 9
9. 11
10. 36
11. $\frac{6}{8}$
Hint: $\frac{6}{7}$
12. $\frac{8}{32}$
Hint: $\frac{1}{8}$
13. $\frac{9}{21}$
Hint: $\frac{2}{7}$
14. $\frac{6}{4}$
Hint: $\frac{5}{4}$
15. $\frac{10}{18}$
Hint: $\frac{4}{9}$
16. $\frac{12}{28}$
Hint: $\frac{2}{7}$
17. $\frac{12}{18}$
Hint: $\frac{4}{5}$
18. $\frac{24}{32}$
Hint: $\frac{5}{8}$
19. $\frac{18}{14}$
Hint: $\frac{8}{7}$
20. $\frac{20}{28}$
Hint: $\frac{4}{7}$
21. 4.8
22. 2
23. 37.5
24. 8
25. 38
26. 84
27. 24
28. 81
29. 20%
30. 40%
31. 80%
32. 160%
33. 40%
34. 16
35. 160
36. 40
37. 50
38. 100
39. 60
40. 15%
41. 575%
42. 405%
43. 187.5%
44. 237.5%
45. 362.5%
46. $\frac{1}{4}$
47. $\frac{1}{2}$
48. $\frac{3}{8}$
49. $\frac{3}{4}$
50. $\frac{5}{8}$
51. 176%
52. $2\frac{2}{3} \times 60 = 120 + 40 = 160$ (min)
53. $24 \times 15\% = \$3.60$
54. $25 \times \left(1 - \frac{2}{5}\right) = 15$
55. $9 \times 10 \times 5 = 450$
56. $\frac{6(\text{arrows})}{22(\text{min.})} = \frac{9(\text{arrows})}{\Delta(\text{min.})}$
 $9 \times 22 = 198 = 6 \times \Delta$
 $\Delta = 33$
57. $700 + 700 \times 20\% = 700 + 140 = 840$
58. $2 \times 5 \times 3 = 30 \text{ in}^3$
59. $2(2 \times 3 + 3 \times 5 + 5 \times 2) = 2 \times 31 = 62 \text{ in}^2$
60. B
 $30 \div 5 = 6$ min per arrow (A)
 $20 \div 5 = 4$ min per arrow (B, faster)

MAP 250 (T2) Issue 5

61. $150 \div 2 = 75$
 $6 \div 2 = 3$
 $75 + 3 = 78$
62. $\frac{1}{5} = 1/5$
63. $3 \times 3 = 9$ combinations
64. $56 \div 80 = 0.7 = 70\%$
65. $30 \div 2 = \$15$
66. D
67. C
68. $40 \times 15\% = \$6$
69. $40 - 40 \times 25\% = 40 - 10 = \30
70. D
 $6 \times 3.5 = 21$
 $48 - 21 = 27$
71. 0.008
72. $.0004 \times 10 = 0.004$
73. .7
74. .006
75. 39
76. $20 \div \frac{2}{5} = 50$
77. 2.1
78. 300
79. 78
80. $\frac{1}{20}$
81. 304
82. $.4 \times 250 = 100$
83. 102000
84. 600
85. $5 \div 20 = 0.25 = 25\%$
86. 1011
87. 98
88. 183
89. $\{1, 2, 4, 8, 16, 32, 64\}$
90. $\Delta = 3$
91. C
92. 180 (carrots)
 $3 \times 3 = 9$
 $9 \times 20 = 180$
93. $12 \text{ (yards)} = 3 \times 4$
94. It is possible. For instance if Sean's garden is 1×7 yd, then the garden has an area of 7 sq. yd, resulting in smaller area.
95. $21 - 9 = 12$
 $12 \div 2 = 6$
 $6 + 4 = \boxed{10}$
96. $\frac{1}{6}$
97. Any one of the following numbers: 2155, 4225, 4270, 6340, or 8410
98. C
99. B
100. C
101. C
102. D
103. C
104. B
105. A

Answer Key

1. 25%
2. $\frac{x-2}{8} = \frac{2}{1}$
 $x = 18$
3. 5
4. C
 $\frac{0.5}{1.5} = \frac{0.3}{0.9}$
5. $32 = 25$
6. 3
7. 1012
8. 1
9. 1
10. $2(-2.4) + 3(2.30)$
 $= -4.8 + 6.9$
 $= 2.1$
11. 2
12. $6\frac{19}{48} = 6\frac{19}{48}$
13. $3\frac{11}{12} = 3\frac{11}{12}$
14. $\frac{2}{9} = 2/9$
15. 2
16. $16\frac{2}{3}\% = 16\frac{2}{3}\%$
17. $33\frac{1}{3}\% = 33\frac{1}{3}\%$
18. 5
19. 12
20. $7 - \{(-4 - 5) - 6 + 10\} = 12$
21. $30 \div 40 = 0.75 = 75\%$
22. $\frac{36}{48} = \frac{3}{4}$
23. $\frac{14}{25} = \frac{56}{100} = 56\%$
24. 80%
25. 125%
26. 400
27. $\frac{2}{3} \times 60 = 40$
28. 5
29. 12
30. 10
31. $8\frac{1}{12}$
32. $\frac{1}{7} + \frac{1}{3} \div \frac{49}{30} = \frac{1}{7} + \frac{1}{3} \times \frac{30}{49} = \frac{1}{7} + \frac{10}{49} = \frac{17}{49}$
33. $\frac{8}{3} \times \frac{15}{4} \times \frac{51}{10} = 51$
34. $\frac{1}{9}$
35. $\frac{18 \times \frac{24}{288}}{6} = 3 \times \frac{24}{288} = 3 \times \frac{1}{12} = \frac{1}{4}$
36. 9
37. 65
38. 12
39. 14
40. 14
41. Method I)
 $120 - 80 = 40$
 $160 \div 40 = 4$ (days)
Method II)
Listed below are the charges for the first 5 days:
❶ 240, 320, 400, **480**, 560
❷ 120, 240, 360, **480**, 600
On the fourth day, both will have the same charge.
42. $15 \div 3 = 5$
 $5 \times 2 = 10$ tablespoons
43. $\frac{1}{2}(1 + 1.2) = 1.1$
 $880 \div 1.1 = 800$
 $800 \times 1.2 = 960$
44. D
45. $50 \times 3\frac{1}{2} = 150 + 25 = 175$ miles
46. $9.45 \times 2 = 18.90$
 $20 - 18.90 = \$1.10$
47. $2\frac{1}{2} = 2\frac{1}{2}$ hr
48. $4 \div 0.01 = 400$ days
49. $(-120) \times -\frac{1}{3} \times -\frac{1}{4} \times -\frac{1}{5} = 2$
50. Square A has a side of 20- $20 \div 4 = 15$
 $20^2 - 15^2 = 400 - 225 = 175$ in²
51. $\frac{12}{6} = \frac{4}{4}$
 $12 \times 4 = 48 = 6 \times \Delta$
 $\Delta = 8$
52. $1 + 20\% = 1.2$
 $6000 \div 1.2 = \$5000$
53. 6 possible ways
Let F, A, and O stand for fiction, adventure, and other.
FAO, FOA, OFA, OAF, AFO, and AOF.
54. distance = time $\times$ speed = $5.5 \times 50 = 275$ mi
55. $80\% : 20\% : 80\%$
 $= 4:1$
 $= \$100 : \25

MAP 260 (T2) Issue 5

56. 50 (Backward thinking)

Imagine that you are watching a motion picture of the bus. Let's view the motion while rewinding tape.

Stop #	Backward motion		
	door closed, bus leaving	before new passengers got on	before unloading
4	20	15 (= 20 - 5)	30 (= 15×2)
3	30	20 (= 30 - 10)	40 (= 20×2)
2	40	25 (= 40 - 15)	50 (= 25×2)
1	50		

57. $\frac{2}{2+3} = \frac{2}{5} = 0.4 = 40\%$

58. $75\% = \frac{3}{4} \times 50\%$
 $\frac{3}{4} \times 20 = 30$

59. $210,000 \times \frac{3}{7} = 90,000$

60. $40 - 25 = 15$
 $0.12 - 0.07 = 0.05$
 $15 \div 0.05 = 1500 \div 5 = 300 \text{ (mi)}$

61. $4 \times 16 = 64$
 $\frac{1}{4} \times 16 = 4$
 $64 + 4 = \underline{68}$

62. 1.5

63. 2.5

64. D

65. $125 \times (15 \div 5) = 375,000$

66. $7 \div 14 = \$0.50$

67. $900 \div 20 = 45$
 $20 \times (1 - 25\%) = 15$
 $900 \div 15 = 60$
 $60 - 15 = \$15 \text{ more}$

68. 10 ways
 AK, AL, AO, AS,
 KL, KO, KS,
 LO, LS, and
 SO.
 Note that AK and KA are the same since the order does not matter.

69. $(10 \times 20) - \{(12 + 20) \times 10 \div 2\} = 200 - 160 = 40$

70. $36 \div (1 - 25\%) = 36 \div \frac{3}{4} = \48

71. 12

72. $138 \times \frac{46.5}{34.5} = 138 \times \frac{93}{69} = 2 \times 93 = \186

73. (a) 1st: 1

2nd: $(1 + 5) \div 2 = 3$

(b) 3rd: $(6 + 5) \div 3 = 3\frac{2}{3}$

4th: $(11 + 5) \div 4 = 4 \text{ (stars)}$

$4 - 1 = 3 \text{ (books in five-star)}$

74. 54

75. $\frac{1}{4} = 0.25 = 25\%$

76. Sharon must have \$50 more than Lester.
 Ans = \$80 (Sharon)

77. $W = 45 \times \frac{2}{9} = 10$

(a) $(10 + 45) \times 2 = 110 \text{ cm (perimeter)}$

(b) $10 \times 45 = 450 \text{ cm}^2 \text{ (area)}$

78. (a) $3 \times (80 \div 40) = \6

(b) $3 \times (100 \div 40) = \7.50

79. $183 \div 6 = 30.5$
 $30.5 \times 10 = 305 \text{ mi}$

80. 8 small + 4 large
 $4 \times (2 \text{ small} + 1 \text{ large}) = 10$
 $2 \text{ small} + 1 \text{ large} = 2.5 \text{ (lbs)}$

81. -24

82. $\frac{8}{9} = 8/9$

83. $\frac{1}{10} = 1/10$

84. .009

85. $10 \text{ yd} = 30 \text{ ft} = 360 \text{ in}$

86. 20000

87. $-20 \times 30 \times -40 \times \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$
 $= 20 \times 30 \times 40 \times \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$
 $= (20 \times \frac{1}{2}) \times (30 \times \frac{1}{3}) \times (40 \times \frac{1}{4})$
 $= 1000$

Note: Simplify before multiply.

88. $20/3 = 6 \frac{2}{3}$

89. 6

90. $\frac{3}{5} = 3/5$

91. 280

92. 321%

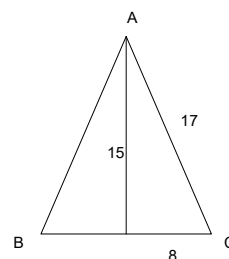
93. $8^3 \times 3 - 7^2 - 10 = 1477$

94. 400

95. $1.18 \times 5 = \$5.90$

Answer Key

- | | |
|-----------------------|--|
| 1. 24 | 41. $2\frac{1}{4}$ |
| 2. -10 | 42. 90 |
| 3. 3 | 43. $0.5^3 \times 0.6^3 = (0.5 \times 0.6)^3 = 0.3^3 = 0.027$ |
| 4. 5 | 44. 0 |
| 5. -1 | 45. 2 |
| 6. -8 | 46. $\frac{1}{7}$ |
| 7. 42 | 47. 70 |
| 8. -2 | 48. -1 |
| 9. -8 | 49. 20 |
| 10. 8 | 12, 16, x) = $4(3, 4, 5)$, $x = 20$, the diameter is 20. |
| 11. -0.24 | 50. 122 |
| 12. 12 | The circle has an area of $10^2\pi = 314$, the area of the shaded region is |
| 13. 1200 | $314 - 12 \times 16$ |
| 14. 20 | $= 314 - 192$ |
| 15. 3000 | $= 122$ |
| 16. 150 | 51. 1 yard = 3 ft |
| 17. 100 | 1 sq. yard = 9 sq. ft |
| 18. 600 | $18 \times 10 = 180$ sq. ft = 20 sq. yard |
| 19. 8 | $15 \times 20 = \$300$ |
| 20. 27 | 52. area = 120 |
| 21. 25% | |
| 22. 190 | |
| 23. 25.8 | |
| 24. 45.1 | |
| 25. 6 | |
| 26. $\frac{1}{8}$ | |
| 27. -19 | |
| 28. -28 | |
| 29. $\frac{5}{24}$ | |
| 30. $7\frac{31}{32}$ | |
| 31. -52.8 | |
| 32. $\frac{29}{60}$ | |
| 33. 99,900 | |
| 34. 96 | |
| 35. 3.7 | |
| 36. 144 | |
| 37. 100 | |
| 38. $\frac{2}{3}$ | |
| 39. $\frac{1}{3}$ | |
| 40. $14\frac{2}{7}\%$ | |



53. $(72 \div 3) \times 0.35$
 $= 24 \times 0.35$
 $= 12 \times 0.7$
 $= \$8.40$
54. It needs 5 pieces of casserole
 Ans = 10 eggs & 15 ounces of butter
55. What is the width of the outer rectangle?
 $20 + 2 \times 5 = 30$
 What is the length of inner rectangle?
 $40 - 2 \times 5 = 30$
 The area of the path:
 $40 \times 30 - 30 \times 20 = 1200 - 600 = 600 \text{ ft}^2$
56. $1000 + 200 \times 8 = 2600$
 $2600 - 2000 \div 2000 = 30\%$

MAP 270 (T2) Issue 5

57. What part of the radio sets remains unsold after two-day sale? It is $1 - \frac{1}{3} - \frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$. Therefore, $\frac{2}{3}$ is sold, twice as many as the remaining ones. The number of being sold is therefore $50 \times 2 = 100$
58. $9 \times 10 \times 10 \times 5 = 4500$
59. $\frac{1}{4}(144\pi) = 36\pi$
60. $6 \times 40 = 240$ (in)
 $1 \text{ yard} = 3 \text{ ft} = 36 \text{ in}$
 $6 \times 36 = 216$
 $7 \times 36 = 252$
 Ans = 7 rolls (enough)
61. Mean = 78.4
 Median = 81
 Mode = 85
 The mean, 78.4, best describes Tim's performance because the low score of 52, brought down his average.
62. D
63. B
64. C
65. C
66. A
67. B
68. D
69. D
70. B
 $68 \div 2 = 34$ (half-perimeter)
 Let x = the width, then the length is $3x - 2$.
 Therefore, we have
 $x + 3x - 2 = 34$
 $4x = 36$
 $x = 9$ (width)
 $3x - 2 = 25$ (length)
 Area = $9 \times 25 = 225 \text{ in}^2$.
71. C
72. D
73. B
 $1300 \times 15 = 19500$
 $32000 - 19500 = 12500$
74. C
75. A
76. \$750
77. D
78. B
79. B
80. C
81. A
82. C
83. C
84. B
85. D
86. 10
87. A
88. A
89. C
90. D
 $92 - 80 = 12$
 $12 \div 80 = 0.15$
91. D
92. A
93. D
94. D
95. D

Answer Key

1. $\frac{1}{2}$
2. 6
3. $1\frac{11}{20} = 1.55$
4. 10135.25
5. 0.008
6. $5 \times 6 = \underline{30}$
7. 1030301
8. 5
9. 510
10. 609
11. 214
12. 5
13. 164
14. 33
15. $21 = 0.70 \times 30$
16. True
17. 101
18. 5
19. 15
20. $\frac{2}{3}$
21. B
22. C
23. D
 $25\% \times 10\% \times 200$
 $= 0.25 \times 0.1 \times 200$
 $= 50 \times 0.1$
 $= 5$
24. D
 $x + 91 + 72 + 69 + 83 \geq 5 \times 80$
 $(x - 80) + 11 - 8 - 11 + 3 \geq 0$
 $(x - 80) - 5 \geq 0$
 $x \geq 85$
25. D
26. D
27. D
28. D
 $3 \times 12 = 36$
 $36^2 = 1296$
29. A
30. C
31. B
32. D
33. D
34. B
35. $275 \div 5 = 55$
 $55 + 4 = \boxed{59}$
36. B
37. B
 $12 + 16 + 8 + 8) / 4 = 11$
38. D
39. D
40. D
41. A
 $80 - 12 = 68$
 $68 \div 80 = 0.85 = 85\%$
42. A
43. B
44. A
 $(4x^2 - 2)(3x - 8) = 12x^3 - 32x^2 - 6x + 16$
45. D
 $(153000 + 299000 + 121000) \times 0.025 = 14325$
46. B
 $5,250 \times 7\% = 367.50$
47. C
 $125,000 \div 400,000 = 31.25\%$
48. C
49. A
 $15\% = 0.15$
 $42 \div 0.15 = 280$
 $280 \times 20\% = 56$
50. D
51. A
52. C
 $M = 325 \times 8 + 12$
 $M = 8(325 + 1) + \boxed{4}$
53. A
54. C
Method (I)
Let x be the largest, then the other two are $x - 4$ and $x - 2$. Their sum is
 $(x - 4) + (x - 2) + x = 102$
 $3x = 108$
 $x = 36$
Method (II)
Since the middle number happens to be the average, we have
 $102 \div 3 = 34$ (the middle number),
the largest number is
 $34 + 2 = 36$.

MAP 280 (T2) Issue 5

55. D

$$24 \times 4 = 96 = x + 4$$

$$x = 92$$

56. C

$$15\% \text{ of } 380 = 3\% \times 5 \times 380 = 3\% \times 1900 = 3 \times 19 = 57$$

57. D

$$6(6x + 1) - 3(x - 1) = 108$$

$$2(6x + 1) - (x - 1) = 36$$

$$11x + 3 = 36$$

$$11x = 33$$

$$x = \boxed{3}$$

58. B

$$1 + 15\% = 1.15$$

$$60 \times 1.15 = 69$$

59. A

60. B

$$61. 18 \div 2 = 9$$

$$16 \div 2 = 8$$

$$9 \times 8 = \boxed{72} \text{ tiles}$$

$$62. 50 \div 2 - 10 = 15 \text{ (length)}$$

$$15 \times 10 = \boxed{150 \text{ in}^2}$$

$$63. 80 \div 4 = 20 \text{ in}$$

$$64. 20 \times 20 = 400 \text{ in}^2$$

$$65. 80 + 20 = 100 \text{ in}$$

$$66. 100 \div 4 = 25 \text{ in}$$

$$67. 25 \times 25 = 625 \text{ in}^2$$

$$68. 625 - 400 = 225 \text{ in}^2$$

$$69. 2(10 + 14) = 48 \text{ in}$$

$$70. 48 \div 4 = 12 \text{ in}$$

$$71. 18$$

$$72. \frac{\sqrt{8}^{\sqrt{2}}}{\sqrt{2}^{\sqrt{8}}} = \frac{\sqrt{2}^{3\sqrt{2}}}{\sqrt{2}^{2\sqrt{2}}} = \sqrt{2}^{\sqrt{2}}$$

73. Method I)

$$\frac{(10 \times 5)^{50}}{25^{25}} = \frac{10^{50} \times 5^{50}}{25^{25}} = \frac{10^{50} \times 25^{25}}{25^{25}} = 10^{50}$$

Method II)

$$\frac{(25 \times 2)^{25} 50^{25}}{25^{25}} = 100^{25}$$

$$\square = 50$$

$$74. 32$$

$$75. A$$