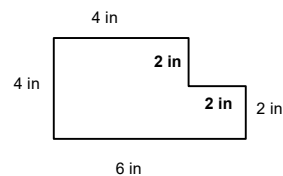


Answer Key

1. 2
2. 8
3. 14
4. 5
5. 8
6. 2
7. 8
8. 21
9. 5
10. 9
11. 18
12. 5
13. 40
14. 3
15. 6
16. 8
17. 6
18. 18
19. 3
20. 12
21. 4
22. 10
23. 4
24. 48
25. 5
26. 24
27. 6
28. 24
29. 5
30. 45
31. $82 + 78 = 160$
 $160 \div 2 = 80$
32. $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45$
 $45 \div 3 = 15$

1, 5, 9	or	1, 6, 8
2, 6, 7		2, 4, 9
3, 4, 8		3, 5, 7
33. $21 \div 3 = 7$
34. $9 + 5 = 14$ (Gerald, older)
Ans = A
35. $24 \times 2 = 48$ days
36. $28 \div 4 = 7$ (cars)
37. $\$15 = 60$ quarters
60 days
38. $1\frac{1}{2} + 1\frac{1}{2} = 3$ lb
39. $300 \times 3 = \$900$
40. $175 \div 5 = 35$ glasses
41. $306 \div 6 = 51$ pies
42. $2 \times 4 = \$8.00$
43. $59 - 17 + 20 = 62$ parents
44. $261 - 165 = 96$
45. $36 \div 4 = 9$ students
46. 2 pencils + 1 eraser = 4.6
1 pencil + 2 erasers = 4.1
3 pencils + 3 erasers = 8.7
6 pencils + 6 erasers = \$17.40
47. $1:32 + 2:28 = 4:00 = 4$ hours
 $4 \times 15 = \$60$
48. $200 - 27 - 30 - 21 = 122 = \1.22
49. $58 - 4 = 54$
 $54 \div 6 = 9$ balloons
50. $2 + 9 + 9 + 20 = 40$
 $6:30 + 0:40 = 6:70 = 7:10$ A.M.
51. B
52. A
53. C
 $6 \times 4 - 2 \times 2 = 20$



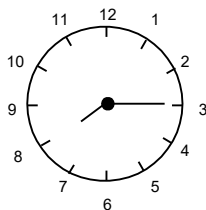
54. A
55. C
56. C
57. B
58. B
59. C
60. D
61. C
62. C
63. D
64. C

MAP 230 (T1) Issue 2

65. A
66. B
67. D
68. C
69. A
 $83 - 49 = 34$
70. D
71. $75 - 53 = \underline{22c}$
72. $7 \times 20 = 140$
73. $2 \times 4 \times 30 = \underline{\$240}$
74. $\frac{1}{5} = 1/5$
75. Add 7 to get the next number.
 Ans = 46
76. A: 4
 B: 8
 C: 7
 $7 \times 4 = \underline{28}$
77. $32 \times \frac{1}{2} = 16$
78. $2 \times 32 = 64$
 $\frac{1}{4} \times 64 = 16$
 $64 - 16 = 48$
79. 2 quarters and 5 dimes
80. $52 \div 2 = \underline{26}$
81. even + even = even
 odd + odd = even
 $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$
 $\frac{2}{3} \times \frac{1}{2} = \frac{2}{9}$
 $\frac{2}{9} + \frac{2}{9} = \frac{4}{9} = 4/9$
82. $2002 - 1843 = 159$
83. $12 + 6 = 18$
 $18 \div 3 = \underline{6 \text{ cakes}}$
84. $36 \div 4 = 9$
 $9 \times 9 = 81 \text{ cm}^2$
85. $50 \times 2 = 100$
 $100 \times 4 = 400$
 $400 \times 7 = 2800$
86. $4 \times 30 = 120$
 $3 \times 25 = 75$
 $120 - 75 = 45$
87. $\frac{1}{4} \times 20 = 5$
 $20 - 5 = 15$
88. $(4 + 3 + 7 + 6) \div 4 = \underline{5 \text{ pounds}}$
89. $30 \div 15 = 2$
 $2 \times 7 = \underline{14}$
90. $9 \div 2 = 4 \text{ R}1$
 $7 \div 2 = 3 \text{ R}1$
 $4.5 \div 2 = 2$
 $4 \times 3 \times 2 = \boxed{24 \text{ blocks}}$

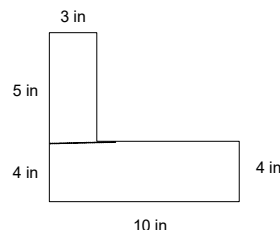
Answer Key

1. 16
2. 6
3. 720
4. 83 & 1 (remainder)
5. $\frac{1}{2} = 1/2$
6. $487 + 512 = 999$
7. $1168 \div 8 = 146$
8. $280 = 2 \times 140 = 4 \times 70 = 10 \times 28 = 20 \times 14 = \dots$
Ans = 14 & 20
9. $43 + 28 = 71$
 $71 \times 3 = \boxed{213}$
10. $60 \div 2 = 30$
 $10 \div 2 = 5$
 $30 + 5 = 35$
11. 28 (marbles)
12. $5 + 4 \times 6 = 5 + 24 = \boxed{29 \text{ ft}}$
13. $315 \div 5 = 63$
14. 3 (three)
15. $6:40 + 1:35 = 8:15$

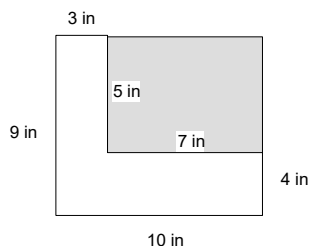


16. $45 + (45 - 18) + (45 - 36) = 45 + 27 + 9 = 81$
17. $48 \times 30 = 1440$

18. Method I)
 $5 \times 3 + 4 \times 10 = \boxed{55 \text{ in}^2}$



- Method II)
The area of the bigger rectangle is $9 \times 10 = 90$.
The area of the shaded region is $5 \times 7 = 35$.
The area of the 'L' shape is $90 - 35 = \boxed{55 \text{ in}^2}$



19. $6 \times 60 = 360$
20. $102 - 14 = 88 \text{ ft}$
21. $130 - 82 = 48$
22. $8 \times 7 = 56$
23. (a) $3 \times 3 = 9$
(b) $3 \times 4 = 12$
(c) $5 \times 3 = 15$
24. (a) $60 \times (5/6) = 50$
(b) $60 \times (5/6) = 50$
25. $20.00 - 3 \times 5.00 = 5$
26. $(14 + 36) / 2 = 25$
27. D
28. (a) $63 / 9 = 7$
(b) $40 / 8 = 5$
29. (a) 53 (b) 52 (c) H
30. (a) $48 \times (3/8) = 18$
(b) $48 \times (1 - 3/8) = 30$
31. $90 - 65 = 25$
32. $2 \times 12 / 8 = 3$
33. (a) $10 + 4 + 5 = 19$
(b) $10 \times 4 \times 5 = 200$
34. $18 \times \frac{7}{9} = 14$

MAP 240 (T1) Issue 2

35. $65 \times 4 = 260$
36. $2 \times 50 = 100$
37. $31/2 + 0.5 = 16$
38. (a) $72 \times 5 / (5+4) = 40$
(b) $72 \times 4 / (5+4) = 32$
39. $2 \times 5 - 2 = 8$
40. $8 \times (9/6) = 12$
41. $1 \frac{2}{3}$
42. 45 min
43. $4:45 - 50 = 3:55$
44. 20
45. $(15 - 14) + (13 - 12) + (11 - 10) + (9 - 8) + (7 - 6)$
 $= \boxed{5}$
46. 10
47. 14
48. 320
49. 9
50. $90 - 42 = \boxed{48}^\circ$
51. $100 \div 25 = 4$
 $20 \times 4 = 80$
52. $4 \times 175 = 700$
53. $\text{LCM}(8, 12) = 24$
 $24 \times 5 = 120$
54. \$6.00
55. $\boxed{6}$ times
56. $126 \div 7 = 18$ (weeks)
57. $2 \times 12 = 24$
 $\frac{1}{2} \times 12 = 6$
 $24 + 6 = \boxed{30}$
58. $8 \times 4 - 4 = 28$
59. $22 + 17 = 39$
 $39 \div 3 = \boxed{13}$
60. \$13
61. D
62. B
63. C
64. 55 (glazed)
 $112 - 24 - 33 = 55$
65. C
66. D
67. A
68. B
69. C
70. C
71. C
72. D
73. C
74. B
75. B
76. B
77. A
78. D
79. C
80. D

See the record below. "T" means target and B means bull's eye.

1	
2	
3	T
4	B
5	
6	T

7	
8	B
9	T
10	
11	
12	B

Answer Key

1. 13¢
2. C
3. D
 $30 - 12\frac{3}{4} - 7\frac{1}{2} = 9\frac{3}{4}$
4. A
5. 6.000
6. A
7. $2160 \text{ cm}^3 = 6 \times 15 \times 24 = 90 \times 24$
8. B
9. A
10. D
11. B
12. C
13. D
14. A
15. D
 $2.5 \times 16 = 40$
16. A
17. D
18. A
19. C
20. A
21. 0.16
22. $1\frac{1}{2} + 2\frac{1}{3} = 3 + (\frac{1}{2} + \frac{1}{3}) = 3\frac{5}{6} = 3 \frac{5}{6}$
23. $6\frac{5}{6} = 6 \frac{5}{6}$
24. 123 & 4 (R)
25. 225
26. 450 (min)
27. 12
28. $\frac{13}{15} = 13/15$
29. $30 \times 8 = 240$
 $240 - 210 = \$30$
30. C
 $36 = 6 \times 6 = 4 \times 9 = 3 \times 12 = 2 \times 18 = 1 \times 36$
(6, 6) is not good as they must be different.
(4, 9) is the only answer.
Their difference is $9 - 4 = 5$.
31. $Speed_{avg} = \frac{D_{tot}}{T_{tot}} = \frac{365+245}{6+4} = \boxed{61 \text{ mph}}$
32. A
 $\frac{10}{5} = 2$
 $2^2 = 4$ times
33. 50
34. { 25, 50, 100 }
35. Let
 $x = \# \text{ daughters}$
 $3x + 1 = \# \text{ sons}$
Each daughter has $x - 1$ sisters.
 $3x + 1 = 5(x - 1)$
 $2x = 6$
 $x = 3$ (daughters)
 $3x + 1 = 10$ (sons)
 $10 + 3 = \boxed{13 \text{ (children)}}$
36. $8 \text{ lb } 12 \text{ oz} + 8 \text{ oz} = \boxed{9 \text{ lb \& 4 oz}}$
37. 14
38. $28 \div 14 = 2$
 $98 \div 14 = 7$
 $196 \div 14 = 14$
 $2 + 7 + 14 = 23$
39. $48 \div 6 = 8$
 $2(6 + 8) = \boxed{28 \text{ in}}$
40. $800 \times 15\% \times 2 = \boxed{240}$
41. 305
42. A
43. 36.008
44. A
45. 15
46. C, E
47. D
48. B
49. C
50. 18500
51. A, C, F
52. B
53. B
54. A, C, E
55. A
56. W: 60
P: 48
A: 72

a) 48
b) Pretzel will be used up.
 $60 - 48 = 12$
 $12 \times \frac{1}{6} = \underline{2 \text{ cups of walnuts}}$
 $72 - 48 = 24$
 $24 \times \frac{1}{8} = \underline{3 \text{ cups of apricots}}$
57. C
58. 2400

MAP 250 (T1) Issue 2

- 59. D
- 60. A
- 61. B
- 62. C
- 63. C
- 64. D
- 65. D
- 66. A
- 67. A

- 68. C
- 69. C, D
- 70. $(240 - 72) \times 24 = 4032$
- 71. B
- 72. $20 \times 3 + 12 \times 4 = 108$
 $108 + 12 = 120$
 $120 \div 24 = 5$
- 73. A

Answer Key

1. $16/81$

2. 1

3. 0.5

4. .005

5. 3000

6. 6

7. $x = 4$

8. $\frac{1}{4} = 1/4$

9. $1\frac{3}{5}$

10. 2

11. $4^5 \div 2^7 = 2^{10} \div 2^7 = 2^3$
 $\square = 3$

12. 3

13. A

14. H(-6, -6)

15. $600 \times 0.6 = \$360$

16. $2,400,000 \div 3,000,000 = \0.80

17. $20\% : 80\% = 1 : 4 = 25 : 100$
 Saved: \$25

18. Let x be the number of students.
 $3x + 5 = 4x - 21$
 $x = 26$

19. B
 $24 + 16 = 40$

20. The area $= \frac{1}{2} \times 12 \times 16$
 $= 96 = \frac{1}{2} \times h \times 20$
 $h = 9.6$ cm

21. D
 $42 \div 7 = 6$
 $6 \times 3 = 18$

22. D
 $\sqrt{36 - \sqrt{121}} = \sqrt{25} = 5$
 $\sqrt{31 + 5} = 6$

23. D
 $\frac{3}{8} - \frac{1}{4} = \frac{1}{8}$
 $\frac{1}{4} - \frac{3}{16} = \frac{1}{16}$
 $\frac{3}{16} - \frac{1}{4} = \frac{1}{16}$
 $\frac{1}{16} - \frac{4}{32} = \frac{1}{32}$
 $\frac{1}{32} - \frac{15}{64} = \frac{1}{64}$
 $\frac{1}{64} - \frac{1}{64} = 0$

24. C

25. C
 $x = 6, y = 4$
 $x + y = \boxed{10}$

26. C
 $3.20 \div 64 = 0.05$

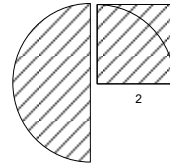
27. B

$3\pi + (4 - \pi) = 2\pi + 4$

or

Move a quarter of the circle to fill the square as below. The area is

half-circle + square $= \frac{1}{2}(4\pi) + 4 = 2\pi + 4$.



28. C

29. D

$12 - 7 = 5$

$5 + 3:30 - 0:45 = 7:45 = 7\frac{3}{4}$ hr

$10 \times 7\frac{3}{4} = 77.50$

30. C

There are

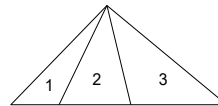
3 smaller sized triangles: (1), (2), (3)

2 medium sized triangles: (12), (23)

1 large sized triangle: (123)

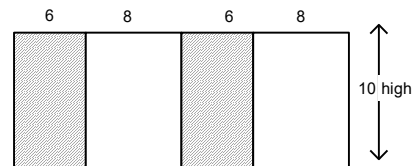
$1 + 2 + 3 = 6$

Note: (13) is not a triangle.



31. D

"Unfold" the wall into a big rectangle, the area of the rectangle is the area of the wall area, which is $2(10+8) \times 6 = 216$



32. C

Rearranged in increasing order:

2, 2, 3, 3, 4, 4, 5, 6, 6, 8

The median is the $\frac{1}{2}(4+4) = 4$

33. A

Let x be the original price, then $80\%(x) = 100 \Rightarrow x = 100 \div 80\% = \125

34. C

MAP 270 (T1) Issue 2

35. C
M: $19 \div 30 = 0.63\dots$
L: 0.745
C: 0.81
J: $47 \div 86 = 0.54$
36. B
$$\frac{2275}{3500} = \frac{91}{140} = \frac{13}{20}$$
$$1 - \frac{13}{20} = \frac{7}{20}$$
37. B
 $\frac{3}{4} \div 2 = \frac{3}{8}$
38. B
39. A
Method I)
 $10 \times 2 = 20$ (before loss)
 $20 \div \frac{2}{3} = \$30.00$ (before spending)
Method II)
 $1 - \frac{1}{3} = \frac{2}{3}$
 $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$ (remaining)
 $10 \div \frac{1}{3} = \$30.00$
40. D
 $\$60 \times 80\% = \48 (sale price). The tax is
 $\$48 \times 5\% = \2.4 . The total of the book is
 $\$48 + \$2.4 = \$50.4$.
41. B
42. 9
43. A
44. B
45. A
46. B
47. A, C, D
48. D
49. C
50. A, D
51. A
52. D
53. C
54. C
55. A
56. 60
57. D
58. A
59. D
60. 125
61. D
62. B
63. $2 \times (2.5 \times 4.5 + 4.5 \times 3.5 + 3.5 \times 2.5)$
 $= 5 \times 4.5 + 7 \times 4.5 + 7 \times 2.5$
 $= 6 \times 9 + 17.5$
 $= 71.5$
64. C
65. $\frac{3}{4} \div \frac{1}{10} = 7.5$
Ans: 7
66. D
67. 6
68. A
69. A, B, E, F
70. B
71. a) $2 \times 24 + 2 \times (18 + 4) = 92$
b) $2 \times 36 + 2 \times (18 + 4) = 116$
72. B
73. B, C, E
74. A

Answer Key

1. $\frac{\frac{14}{5}}{\frac{14}{3}} = \frac{3}{5} = 3/5$

2. B

3. D

$$4 \div \frac{2}{3} = 6$$

4. D

5. A

6. C

7. D

8. D

9. B

10. D

11. C

12. D

13. D

$$5 \times 12 : 3 = 20 : 1$$

14. C

15. B

Let x = Peter's age, $x + 5$ = Don's age.

In five years,

$$D = 2P$$

$$x + 5 + 5 = 2x$$

$$x = 10$$

16. A

Let x = Peter's age, $x + 5$ = Don's age.

In five years,

$$D = 2P$$

$$x + 5 + 3 = 2(x + 3)$$

$$x + 8 = 2x + 6$$

$$x = 2$$

17. C

18. D

19. D

20. D

21. 2.5

$$22. 5(-2n + 7) = 2(n + 5.5) + 60$$

$$12n = 35 - 71 = -36$$

$$n = -3$$

23. 3

$$24. 330 \div 55\% = 600$$

$$25. \sqrt{3.6 \times 10^{11}} = \sqrt{36 \times 10^{10}} = 6 \times 10^5$$

$$26. 2 \times 10^{-1} = 2 \times 10^{-1}$$

27. Ans = 0.25 (in decimal)

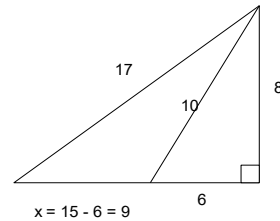
28. 2

29. C

30. (8, 15, 17)

$$(3, 4, 5) \Rightarrow (6, 8, 10)$$

$$15 - 6 = 9$$



$$31. \frac{1}{2}(10-3) \times 10 = 35$$

$$32. CD = 24$$

33. C

$$1+2+3+4+5+9 = 24$$

$$34. \frac{1}{4}(15 + 17 + 21 + 19) = 18$$

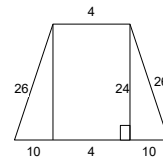
$$35. 64 \times 12.5\% = 64 \times \frac{1}{8} = 8$$

$$64 + 8 = 72$$

$$36. 24 + 4 + 26 + 26$$

$$= 30 + 50$$

$$= 80$$

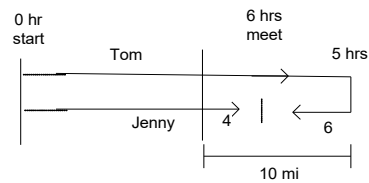


$$37. 5(6 - 4) = 10 \text{ mi}$$

$$10 \div (6 + 4) = 1 \text{ hrs}$$

$$5 + 1 = 6$$

$$6 \times 4 = 24 \text{ mi}$$



$$38. p + w = 600$$

$$p - w = 500$$

$$p = 550$$

$$w = 50$$

Ans = 550 (plane) & 50 (wind)

$$39. 2 - 0.7 = 1.3$$

$$1.3 \div 0.15 = 8 \text{ R } 0.1$$

$$2 + 8 = 10 \text{ min}$$

MAP 280 (T1) Issue 2

40. B
 $AB = 1.5AD = 1.5 \times 20 = 30$
 The area of the rectangle is $20 \times 30 = 600 \text{ (cm}^2\text{)}$.
 The area of a circle is $10^2\pi = 100\pi$.
 The area of the shaded region is $600 - 150\pi \text{ (cm}^2\text{)}$
41. C
42. A, C, E
43. B
44. C, D, G
45. D
46. 16
47. A, B, E
48. C
49. 40
50. B
51. A
52. D
53. A
54. A
55. 2.5
56. B, D, E
57. D
58. a) $\frac{-2}{3}$
 b) $\frac{-2}{3}$
 c) $\frac{-2}{3}$
59. 18
60. A, D
61. B
62. $\frac{180}{181}$
63. B, C, D
64. $20 \times 2 = 40$
 $40 \div (30 - 20) = 4 \text{ days}$
65. B
66. a) $PR = \sqrt{125}$, $PQ = 5$, $QR = 10$, so $PR^2 = PQ^2 + QR^2$
 b) $\text{area}(\triangle PQR) = 25$
67. A
68. 0
69. D
70. A
71. D
72. $\frac{1}{216}$
73. C
74. B
75. C