

Answer Key

1. $\frac{2}{7}$
2. $\frac{3}{8}$
3. $\frac{3}{8}$
4. $\frac{3}{8}$
5. $\frac{3}{8}$
6. $\frac{4}{8}$
7. $\frac{4}{8}$
8. $\frac{4}{8}$
9. $\frac{4}{8}$
10. $\frac{3}{7}$
11. 3
12. 3
13. 10
14. 5
15. 2
16. 7
17. 12
18. 2
19. 3
20. 20
21. 5.855
22. 52.16
23. 9.07
24. 5.898
25. 82.67
26. 2.387
27. 107.33
28. 112.7
29. 3.96
30. 114.3
31. 12
32. 22
33. 6
34. 7
35. 21
36. 8
37. 9
38. 13
39. 14
40. 10
41. $12 + 5 = 17$
 $17 + 7 = 24$
42. $30 \div 3 = 10$
 $10 \times 2 = 20$
 $10 + 3 = 13$ yrs old (Juan)
 $20 + 3 = 23$ yrs old (Bill)
43. 100
44. B
45. $10:10 - 8:40 = 1:30 = 1$ hr & 30 min
46. 998
47. 101
48. $1000 \div 10 = 100$ (pennies) = 1 dollar = \$1.00
49. $16 \div 2 = 8$
 $8 \times 3 = 24$ ft
50. $14 \div 2 = 7$
 $7 - 5 = 2$ inches
51. $2(5 + 10) = 30$ cm
52. $63 \times 7 = 441$
53. $12 \times 7 = 84$
54. $12.50 \times 2 = \$25.00$
55. $62 - 39 = 23$
56. $15 \div 3 = 5$ (Mary)
 $5 \times 2 = 10$ (Susan)
57. $6 - \frac{1}{2} \times 6 = 3$ (Amy's)
 $6 - \frac{1}{3} \times 6 = 4$ (Paul's)
 $3 + 4 = 7$ cans
58. $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$
 $1 - \frac{3}{4} = 1/4$ (leftover)
59. 8 & 9
60. $82 + 78 + 83 = 243$
 $243 \div 3 = 81$
61. $3 \times 60 = \underline{180 \text{ min}}$
62. $3.5 \times 12 = 42$
 $42 \times (1 - \frac{1}{3}) = 28$
 $\frac{1}{4} \times 28 = 7$ roses
63. $40 - 21 = 19$
 $2040 + 19 = \underline{2059}$
64. $3 \times 12 = 36$
 $36 \div 2 = 18$
 $36 + 18 = \underline{54}$
65. $3 \times 80 = 240$ elves

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66. $25 \div 10 = 2.5$
 $2.5 \times 8 = \underline{20 \text{ pounds}}$
67. $20 \times 2 = 40$
 $40 \times 4 = \$160$
68. $40 \div 5 = 8$ (bags)
 $8 \times 2 = 16$ cookies
69. $30 \div 2 = 15$ (bags)
 $15 \times 5 = 75$ candies
70. C
71. $17 - 5 = 12$
 $\frac{1}{2}(12) = 6$
72. $25 - 10 = 15$
 $2 \times 15 = \$30$
73. $3 \times 12 = 36$
 $2 + 1 = 3$ couples = 6 people
 $36 \div 6 = 6$ cookies
74. $2.9 + .5 + .6 + 1.25 = 5.25$
 $6 - 5.25 = \underline{\$0.75}$
75. $5 \times 12 \times 12 = \underline{720}$
76. $24 \div 4 = 6$
 $24 - 6 = \underline{18 \text{ hours}}$
77. $2 \times 12 = 24$
 $\frac{1}{6} \times 24 = 4$
 $24 - 4 = 20$
 $\frac{1}{4}(20) = 5$ cookies
78. The average of 30, 40, 50, 60, and 70 = 50
79. $15 + 20 = 35$
 $1 - \frac{1}{5} = \frac{4}{5}$
 $35 \times \frac{4}{5} = \underline{\$28}$
80. 12:30 P.M.

Answer Key

- | | |
|-------------------|---|
| 1. 100, 10 | 43. 15 |
| 2. 20, 2 | 44. 5.25 |
| 3. 200, 20 | 45. $2 \times 0.75 = 1.5$ |
| 4. 30, 3 | $4 \times 0.75 = 3$ |
| 5. 300, 30 | $6 \times 0.75 = 4.5$ |
| 6. .04, .004 | Ans = 6 cans only |
| 7. .05, .005 | 46. $282 \div 2 = 141$ |
| 8. .06, .006 | $480 \div 3 = 160$ |
| 9. .07, .007 | $160 - 141 = 19 \text{ mi}$ |
| 10. .08, .008 | 47. $15 \times 2 = 30$ |
| 11. 200, 2000 | $30 - 12 = 18$ |
| 12. 300, 3000 | 48. $512 - 22 = 490$ |
| 13. 400, 4000 | $490 - 33 = 457$ |
| 14. 500, 5000 | $457 - 44 = 413$ |
| 15. 600, 6000 | $413 - 55 = 358$ |
| 16. 10000, 100000 | $358 - 66 = 292$ |
| 17. 20000, 200000 | $292 - 77 = 215$ |
| 18. 30000, 300000 | 49. $321 \times 2 + 10 = 642 + 10 = 652$ |
| 19. 40000, 400000 | 50. $617 - 523 = 94$ |
| 20. 50000, 500000 | 51. $99.75 + 79 = 178.75$ |
| 21. 60000 | 52. $8 \times 5.4 = \$43.20$ |
| 22. 18000 | 53. $15 \times 8 = 120$ |
| 23. 140000 | $120 - 110 = 10$ |
| 24. 600 | 54. $20 \div 5 = 4$ |
| 25. 1200000 | $8 \times 4 = 32$ |
| 26. 160000 | 55. $L = M + 2$ |
| 27. 90000 | $L = S + 8$ |
| 28. 8000 | $50 + 10 = 60$ |
| 29. 10000 | $60 \div 3 = 20 \text{ (L)}$ |
| 30. 400 | 56. $946 - 375 = 571$ |
| 31. 0.028 | 57. $1/5$ |
| 32. 0.035 | 58. 4 |
| 33. 0.025 | 59. $84 + 68 + 76 = 228 \text{ in}$ |
| 34. 0.03 | 60. $250 \div 5 = 50 \text{ mph}$ |
| 35. 0.02 | 61. $130 - 74 = 56$ |
| 36. 0.0036 | 62. $9 \times 7 = 63$ |
| 37. 0.01 | 63. (a) $3 \times 5 = 15$ |
| 38. 0.0015 | (b) $3 \times 6 = 18$ |
| 39. 0.0024 | (c) $7 \times 3 = 21$ |
| 40. 0.0032 | 64. $3 \times 20 + 4 \times 30 = 180\text{¢}$ |
| 41. 2 | 65. $20.00 - 4 \times 3.25 = 7$ |
| 42. 52 | 66. $(14+8)/2 = 11$ |
| | 67. B |
| | 68. (a) $24/8 = 3$ |
| | (b) $42/6 = 7$ |

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69. (a) 39 (b) 37 (c) H

70. (a) $10 \times (1/2) = 5$

(b) $10 \times (1 - 1/2) = 5$

71. $90 - 71 = 19$

72. $2 \times 15 / 10 = 3$

73. $(13+9)/2 = 11$

74. $32 \times \frac{5}{8} = 20$

75. $35 \times 5 = 175$

76. $4 \times 60 = 240$

77. $59/2 + 0.5 = 30$

78. (a) $35 \times 5 / (5+2) = 25$

(b) $35 \times 2 / (5+2) = 10$

79. $2 \times 6 - 6 = 6$

80. $5 \times (24/8) = 15$

81. 0.0075

82. 5,000,067,900

83. $48 + 8 = 56$

84. \$20

85. 20,000

86. 9

87. $(3^3)^3 = 3^9$
 $\square = 9$

88. $7\frac{1+4}{8} = 7\frac{5}{8} = 7\frac{5}{8}$

89. 4

90. $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$
 $\frac{5}{6}(5280) = 5 \times 880 = 4400$

91. $(7 - 3) - (5 - 3) = 7 - 5 = 2$

92. $10 + 8 = 18$
 $18 + 6 = 24$ (yrs old)

93. $20 - 2 \times 4 = 12$

94. $3.5 \div 5 = \$0.70$

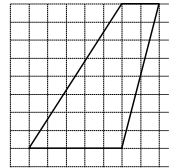
95. Method I)
 $65 - 25 = 40$
 $40 \div 2 = \$20.00$

Method II)
 $(65 + 25) \div 2 = 45$
 $65 - 45 = \$20.00$

96. $2 \times 16 + 8 = 40$ (oz)
 $4.00 \div 40 = \$0.10$

97. $28 \div 2 = 14$

98. top = 2
 base = 5
 height = 8
 area = $\frac{1}{2}(2+5)(8) = 28$



99. $10 - 5 + 10 = 15$

100. $40 \div 2 = 20$
 $20 - 11 = 9$

Answer Key

1.
$$\begin{array}{r} \frac{10}{15} \\ - \frac{1}{15} \\ \hline \end{array} = \frac{9}{15} = \frac{3}{5}$$
2.
$$\begin{array}{r} 6\frac{15}{20} \\ - \frac{11}{20} \\ \hline \end{array} = 6\frac{4}{20} = 6\frac{1}{5}$$
3.
$$\begin{array}{r} 3\frac{16}{30} \\ - \frac{25}{30} \\ \hline \end{array} = 2\frac{21}{30} = 2\frac{7}{10}$$
4.
$$\begin{array}{r} \frac{20}{30} \\ - \frac{3}{30} \\ \hline \end{array} = \frac{17}{30}$$
5.
$$\begin{array}{r} \frac{23}{24} \\ + \frac{16}{24} \\ \hline \end{array} = \frac{39}{24} = \frac{13}{8} = 1\frac{5}{8}$$
6.
$$\begin{array}{r} \frac{28}{48} \\ - \frac{18}{48} \\ \hline \end{array} = \frac{10}{48} = \frac{5}{24}$$
7.
$$\begin{array}{r} 3\frac{10}{12} \\ - \frac{9}{12} \\ \hline \end{array} = 3\frac{1}{12}$$
8.
$$\begin{array}{r} \frac{22}{30} \\ + \frac{21}{30} \\ \hline \end{array} = 1\frac{13}{30}$$
9. $2 \times (3\frac{3}{4} + 8) = 23 \frac{1}{2}$ (inches)
10. $35\frac{1}{2} + 20\frac{3}{4} + 15\frac{1}{8} = 70\frac{4+6+1}{8} = 71 \frac{3}{8}$ (pounds)
11. $\frac{4}{24} + \frac{5}{24} = \frac{9}{24} = \frac{3}{8}$
12.
$$\begin{array}{r} 3\frac{62}{70} \\ + 2\frac{49}{70} \\ \hline \end{array} = 6\frac{41}{70}$$
13.
$$\begin{array}{r} \frac{7}{16} \\ - \frac{6}{16} \\ \hline \end{array} = \frac{1}{16}$$
14.
$$\begin{array}{r} 5\frac{11}{35} \\ - 2\frac{7}{35} \\ \hline \end{array} = 3\frac{4}{35}$$
15. $6 + (\frac{1}{2} + \frac{2}{3} + \frac{1}{4}) = 6 + \frac{6+8+3}{12} = 7\frac{5}{12}$
16.
$$\begin{array}{r} \frac{9}{12} \\ + \frac{2}{12} \\ \hline \end{array} = \frac{11}{12}$$
17.
$$\begin{array}{r} \frac{15}{20} \\ + \frac{14}{20} \\ \hline \end{array} = \frac{29}{20} = 1\frac{9}{20}$$
18.
$$\begin{array}{r} 9\frac{21}{48} \\ - 9\frac{12}{48} \\ \hline \end{array} = \frac{9}{48} = \frac{3}{16}$$
19. 19
20. 65
21. 12
22. 5
23. $4\frac{2}{15}$
24. 9/49
25. 1
26. 11
27. 52
28. 8
29. 12
30. 21
31. B
32. C
33. D
34. B
35. C
36. A
37. C
38. A
39. C
40. C
41. C
42. B
43. A
44. C
45. C
46. A
47. B
48. B
49. C
50. C
51. $\frac{3}{2} = 3/2$
52. $\frac{2}{5} = 2/5$
53. $\frac{1}{4} = 1/4$
54. A = 12

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55. $\frac{3}{8} \times 24 = 9$
56. 0.06
57. 18
58. 500
59. $120 \div 2 = 60$
 $60 \div 3 = 20$ (width)
 $20 \times 2 = 40$ (length)
 $20 \div 2 = 10$ (radius)
 $10^2 \pi = 314$
 $2 \times 314 = 628$ (two circles)
 $20 \times 40 = 800$
 $800 - 628 = \boxed{172}$
60. $10 - 6 = 4$ (height)
 $4 \times 6 = 24 \text{ in}^2$
61. $60 \div 2 = 30$
 $30 - 20 = 10$
 $20 \times 10 = \boxed{200 \text{ in}^2}$
62. 12×25000
 $= 3 \times 4 \times 25000$
 $= 3 \times 100000$
 $= \boxed{300,000}$
63. B
64. 3.25
65. $120 \div 12 = 10$
 $2(12 + 10) = \boxed{44 \text{ ft}}$
66. $40 \times 12.25 = 490$
67. $195 \div 32\frac{1}{2}$
 $= 195 \div 32.5$
 $= \boxed{\$60 \text{ per hour}}$
68. $360 \div 60 = \boxed{6}$
69. $20 \times 3 \times 2 = \$120$
70. 1, 2, 3, 4, 6, and 12 are the factors of 12. Their sum is
 $1 + 2 + 3 + 4 + 6 + 12$
 $= 28$
71. $15 \times 20 = 300$
 $300 \div (15 - 3) = 25 \text{ days}$
72. $24\frac{1}{2} - 12\frac{5}{8} = 11\frac{7}{8}$
 $4 \times 11\frac{7}{8} = 44\frac{7}{2} = \47.50
73. $\frac{1}{3} \times 18 = 6$
74. $18 \div \frac{3}{4} = 24$
 $18 + 6 = 24$
75. B
 $2 \times 2 = 4$
 $3 \times 4 + 2 = 14$
 $4 \times 14 = 56$
76. $\frac{3}{8} = 3/8$
77. $0.6 \div 4 = 0.15$
 $0.15 \times 50 = \$7.50$
78. $33 \times 0.15 = \$4.95$
Ans = 33 minutes
79. $91 \div 35 = \frac{91}{35} = \frac{13}{5} = 2.6 \text{ hours} = 2 \text{ hr} \& 36 \text{ min}$
80. $\frac{5000 - 4000}{5000} = 0.2 = 20\%$
81. $27 \div 3 = 9$
8, 9, 10
 $8 \times 9 \times 10 = 720$
82. $\frac{3}{2}$ or $1\frac{1}{2} = 1 \frac{1}{2}$
83. $\frac{35}{5} \times 8 = 7 \times 8 = \56
84. 30
85. C
The LCM of 2 and 3 is 6, which means they will meet each other every 6 days. So, the earliest day they are going to meet is next Monday.
86. $\frac{1}{2} \times 12 \times 12 = 72$
 $72 \div 4 = 18$
 $18 \times 6 = 108 \text{ plants}$
87. A
She can buy ice cream every 12 days.
3, 6, 9, 12, 15, 18, 21, 24
4, 8, 12, 16, 20, 24
The next time she can buy it will be 12 days later, which is a Saturday.
88. $30 \times \frac{1400}{8}$
 $= 30 \times 14 \times 125$
 $= 15 \times 7 \times (2 \times 2 \times 125)$
 $= 15 \times 7 \times 500$
 $= 105 \times 500$
 $= \underline{\underline{\$52,500 \text{ pounds}}}$
89. Mon = 3
Tue = 6
Wed = 12
Thu = 24
Fri = 48 cards
90. $1yx9 \times 9 = 9xy1$
or
 $9xy1 \div 9 = 1yx9$
What is the quotient in the long division of $9xy1 \div 9$?
If $x = 9$, then $y = 1$, but 9911 is not divisible by 9.
Therefore, $x \neq 9$, thus the quotient of $9xy1 \div 9$ must be $10y9$. To be divisible by 9,
 $1 + 0 + y + 9$ must be divisible by 9, so $y = 8$.
Ans = 1089

Answer Key

1. $x = -4$
2. $x = 1$
3. $x = -5$
4. $x = 4$
5. $x = 3$
6. $x = 3$
7. $x = -2$
8. $x = 4$
9. $x = 1$
10. $x = 1$
11. -1
12. -3
13. 2.5
14. $\frac{-3}{4}$
15. 6
16. -0.04
17. -1.2
18. $\frac{4}{3}$
19. 0.4
20. 2
21. 6.25
22. 676
23. 5.76
24. 12
25. 80
26. 25
27. 9
28. 60
29. 110
30. $30^2 = 900$
31. $2.8^2 = 7.84$
32. $3^2 = 9$
33. $0.1^2 = 0.01$
34. $3.1^2 = 9.61$
35. $4^2 = 16$
36. $0.2^2 = 0.04$
37. $3.2^2 = 10.24$
38. $8^2 = 64$
39. $0.6^2 = 0.36$
40. $4^3 = 64$
41. A
42. A
 $(\frac{1}{2})^3 = \frac{1}{8}$
 $(\frac{1}{3})^2 = \frac{1}{9}$
43. A
 $0.2^3 = 0.008$
 $0.3^2 = 0.09$
44. D
 $5 \times 3 = 15$
 $15 - 1 - 7 = 7$
 $90 + 7 = 97$
45. A
46. D
47. A
 $4 \times 6 = 24$
 $\frac{1}{3}(24) = 8$
 Let $x =$ the decrement.
 $(6 - x)(4 - x) = 8$
 $x^2 - 10x + 24 = 8$
 $x^2 - 10x + 16 = 0$
 $(x - 2)(x - 8) = 0$
 $x = 2$ (8 is ridiculed)
48. C
 Capacity of type A: $\frac{1}{3}$
 Capacity of type B: 3
 Total: $3\frac{1}{3}$
 $20 \div 3\frac{1}{3} = 6$ of each type
 $6 \times 2 = 12$ bags
49. A
 $\frac{1}{4} \cdot 3 = 4^3 = 64$
50. D
51. D
 $x^2 + 6x + 9 = (x + 3)^2$
 $4(x + 3) = \boxed{4x + 12} \dots$ perimeter
52. C
 3:5
53. B
54. C
55. D
56. C
 2, 3, 5, 7 are the primes in single digit, the
 probability is $\frac{4}{10} = \frac{2}{5}$.
57. A

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58. D

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

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

$$11x + 3 = 36$$

$$11x = 33$$

$$x = \boxed{3}$$

59. A

60. B

$370 \div 18 = 20 \text{ R } 10$, therefore, the remaining 10 students must be distributed to 10 classes. As a result, 10 classes have 21 students and the rest 8 classes have 20 students.

61. $1 + 1 = 2$

$$2 + 2 + 2 = 6$$

$$6 + 3 + 3 = 12$$

$$12 + 4 + 4 = 20$$

$$20 + 5 + 5 = 30$$

$$30 + 6 + 6 = 42$$

$$42 + 7 = 49$$

62. $36 = 6^2$

$$6 \div 2 = 3$$

$$2(3+6) = 18 \text{ in}$$

63. There are

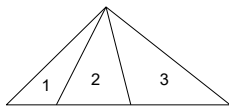
3 smaller sized triangles: (1), (2), (3)

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

1 large sized triangle: (123)

$$1 + 2 + 3 = 6$$

Note: (13) is not a triangle.



64. #(the smallest size triangles) = 9

#(the medium size triangles) = 3

#(the largest size triangle) = 1

$$9 + 3 + 1 = 13$$

65. #(the smallest square) = 9

#(the medium square) = 4

#(the largest square) = 1

$$9 + 4 + 1 = 14$$

$$66. \frac{1}{3} \div \frac{3}{5} = \frac{5}{9}$$

$$2(\frac{5}{9} + \frac{3}{5}) = \frac{104}{45} = 2\frac{14}{45} = 2 \text{ } 14/45$$

67. D

$$17 - 1 = 16$$

$$16 \div 7 = 2 \text{ R } 2$$

Saturday - 2 = Thursday

$$68. \frac{1}{\frac{1}{2} + \frac{1}{3}} = 1\frac{1}{5} \text{ hr}$$

$$\text{Ans} = 1:12 \text{ pm}$$

69. Method I)

$$6 \times \frac{1\frac{1}{5}}{2} = 3.6 \text{ miles from Sally's home.}$$

Method II)

Since Sally walks faster, the meeting place will be farther to her home.

$$(a) 6 \times \frac{3}{2+3} = 3.6 \text{ (from Sally's)}$$

$$(b) 6 \times \frac{2}{2+3} = 2.4 \text{ (from Tom's)}$$

70. B

$$71. A: \frac{60}{20} = 3 \text{ sec per swing}$$

$$B: \frac{60}{15} = 4 \text{ sec per swing}$$

$$\text{LCM}(3, 4) = 12$$

Every 12 sec, they will return to the starting point.

$$1 + \frac{60}{12} = 1 + 5 = \underline{6 \text{ times}}$$

$$72. 50 \times 2\frac{1}{2} = 125 \text{ mi}$$

$$73. \frac{1}{2} = 1/2$$

$$74. 50 \div 2 = 25$$

$$25 \times 5 = \$125$$

$$75. \frac{30000 - 25000}{25000} = \frac{5}{25} = \frac{1}{5} = 0.2 = 20\%$$

$$76. \frac{1}{8} < \frac{1}{7.5} < \frac{1}{7} \text{ and } \frac{1}{7.5} = \frac{10}{75} = \frac{2}{15} = 2/15$$

$$77. \frac{3}{4} \times 1000 = 750$$

$$750 - 200 = 550$$

78. A

$$\text{Total amount of oil: } 30 + 15 = 45$$

$$\text{Total mixture: } 45 + 15 = 60$$

$$\frac{45}{60} = 0.75 = 75\%$$

$$79. 42.75 \div 3 = \$14.25$$

80. 3 possible outcomes

(H, H), (H, T), and (T, T).

Note that (H, T) are the same as (T, H) since the order does not matter.

Answer Key

1. $x = 3$
2. $x = -2$
3. $x = 4$
4. $x = 1$
5. $x = 1$
6. $x = -2$
7. $x = 11$
8. $x = -2$
9. $7 - 2(2.5 - 3x) = 1 - 4x$
 $7 - 5 + 6x = 1 - 4x$
 $2 + 6x = 1 - 4x$
 $2 + 10x = 1$
 $10x = -1$
 $x = -0.1$
10. Multiply both sides by 12,
 $3x + 4x = 12$
 $7x = 12$
 $x = \frac{12}{7} = 12/7$
11. -1
12. -3
13. 2.5
14. $\frac{-3}{4}$
15. 6
16. -0.04
17. -1.2
18. $\frac{4}{3}$
19. 0.4
20. 2
21. 2890000
22. 0.0225
23. 1.21
24. 6.73
25. 72200
26. 685
27. 270
28. $60\% \times 1600 = 0.6 \times 1600 = 960$
29. 5
30. 32
31. $20 \div \frac{2}{5} = 50$
32. $8 \div 20 = 0.4 = 40\%$
33. 25%
34. $20\% \times 50 = 0.2 \times 50 = 10$
35. $\frac{2}{3} \times 60 = 40$
36. $40/30 = \frac{4}{3} = 4/3$
37. 120
38. 25%
39. 125%
40. 40%
41. 4
42. B
43. B
44. C
45. B
46. B
47. C
48. B
49. A
50. C
51. D
52. B
53. C
54. B
55. C
56. D
57. 25
58. A
59. A
60. D
61. A
62. $0.07^2 = 0.0049$
63. 54
64. $\frac{7}{8} = 7/8$
65. $1 \frac{35}{36}$
66. 12.5
67. 0.008
68. $1.1 + 1.3 - 0.4 \times 0.3 = 2.28$
69. $(2 \times 3) \times (3 \times 4) \times (4 \times 5) = 6 \times 12 \times 20$
 $\square = 20$
70. -7
71. $x = -6$
72. $(\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6})^2 = (\frac{1}{6})^2 = \frac{1}{36} = 1/36$
73. 9
74. 5

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75. 16

$$76. \begin{aligned} 2,000 \times 0.8 &= 1,600 \\ 1,600 \times 0.05 &= \$80.00 \end{aligned}$$

$$77. \begin{aligned} 60 \times 20\% &= 60 \times 0.2 = 12 \\ 60 - 12 &= \$48.00 \end{aligned}$$

78. C

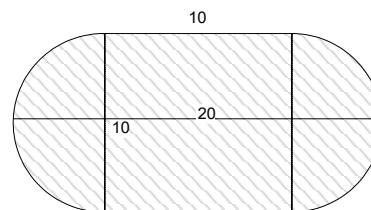
$$1 - 20\% = 0.8$$

$$2^{\text{nd}} \text{ time: } 0.8 \times 0.8 = 0.64$$

$$3^{\text{rd}} \text{ time: } 0.8 \times 0.64 = 0.512$$

$$4^{\text{th}} \text{ time: } 0.8 \times 0.512 = 0.4096$$

79. 20 yd



$$80. 420 \times .3 = \$126.00$$

Answer Key

- | | |
|--|--|
| 1. $x = 3$ | 31. 30 |
| 2. $x = 11$ | 32. 400 |
| 3. $x = -2$ | 33. $1.05 = 1\frac{1}{20}$ |
| 4. $x = 1$ | 34. 211 |
| 5. $x = 1$ | 35. $48\% \times 75 = 75\% \times 48 = \frac{3}{4} \times 48 = 36$ |
| 6. $x = -2$ | 36. $0.2 + 2 + 20 = 22.2$ |
| 7. $x = 4$ | 37. 421971 |
| 8. $x = -2$ | 38. $17 \div 85\% = 20$ |
| 9. $7 - 2(2.5 - 3x) = 1 - 4x$
$7 - 5 + 6x = 1 - 4x$
$2 + 6x = 1 - 4x$
$2 + 10x = 1$
$10x = -1$
$x = -0.1$ | 39. $2^2 \times 3 \times 5$ |
| 10. Multiply both sides by 12,
$3x + 4x = 12$
$7x = 12$
$x = \frac{12}{7} = 12/7$ | 40. 25 |
| 11. $x^2 + 10x + 9$ | 41. 5 sq in |
| 12. $x^2 + 4x + 3$ | 42. B |
| 13. $x^2 + 9x + 8$ | 43. C |
| 14. $x^2 + 8x + 7$ | 44. D
$r^2\pi = 4^2$
$r = \sqrt{\frac{16}{\pi}} = 2.25$ |
| 15. $x^2 + 3x + 2$ | 45. B |
| 16. $x^2 + 5x + 4$ | 46. D |
| 17. $x^2 + 6x + 5$ | 47. B |
| 18. $x^2 + 7x + 6$ | 48. D |
| 19. $x^2 + 5x + 6$ | 49. B |
| 20. $x^2 + 7x + 10$ | 50. D |
| 21. 60 | 51. B |
| 22. -8 | 52. D |
| 23. $0.\overline{142857} = 0.142857$ (6 digits repeated) | 53. B |
| 24. $15/20 = 3/4$ | 54. B
$0.12 \times 10^3 + 1.2 \times 10^3$
$= 1.32 \times 10^3$ |
| 25. .1234 | 55. A |
| 26. 2.5 | 56. B |
| 27. $1 + 4 = 5$
$5 + 7 = 12$
$12 + 10 = 22$
$22 + 13 = 35$
$35 + 16 = 51$
$51 + 19 = \underline{70}$ | 57. B
Let a , b , and c be three sides of the triangle. We may assume that c is the largest one, but note that
$a + b > c$ (triangular inequality).
$19 = a + b + c > 2c$
$9.5 > c$ (integer)
$c = \boxed{9}$ |
| 28. 21 r | 58. C |
| 29. .002 | 59. C |
| 30. 571428 | 60. D
$143.75 - 125) \div 125 = 0.15 = 15\%$ |

MAP 280 (T1) Issue 7

61. $(2.25 \times 4)^2 = 9^2 = 81$

62. $\sqrt{15} \times \sqrt{35} \times \sqrt{21}$
 $= \sqrt{3 \times 5} \times \sqrt{5 \times 7} \times \sqrt{7 \times 3}$
 $= 3 \times 5 \times 7$
 $= 105$

63. C

64. $240 - 6 + 7 = 241$

65. $4^{60} \div 2^{30} = 2^{120} \div 2^{30} = 2^{90} = 8^{30}$
 $\square = 30$

66. C

67. $2(x + \frac{1}{4}) = x - \frac{1}{2}$
 $x = -1$

68. $13 \div 65 = .2 = 20\%$

69. $125.6 \div 3.14 = 40$ in (diameter)
 $40 \div 2 = 20$ in (radius)
 $3.14 \times 20^2 = 1256$ in² (area)

70. $80 \div 10 = 8$
 $8 \times 8 \times 4 = 256$ cm²

71. bigger : smaller = 2 : 1
 $2 + 1 = 3$
 $\frac{2}{3}$: bigger one
 $\frac{1}{3}$: smaller one
 $\frac{2}{3} \times 48 = 32$ balls

72. Method I)

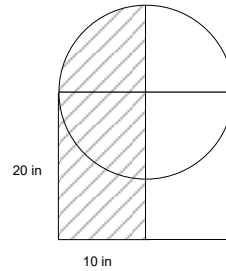
$\frac{2}{7} + \frac{1}{2}(\frac{2}{7}) = \frac{4.5}{7}$
 $126 \times \frac{4.5}{7} = 18 \times 4.5 = 81$

Method II)

$126 \times \frac{2}{7} = 36$
 $126 - 36 = 90$
 $\frac{1}{2} \times 90 = 45$
 $45 + 36 = 81$

73. $250 + 150 \times 12 = 2050$ (total)
 $2050 - 1875 = \$175.00$

74. Flip the lower quarter circle fill up the left side.
 $20 \times 10 = 200$ in²
 $\frac{1}{4}(10^2 \times 3.14) = 78.5$
 $200 + 78.5 = 278.5$ in²



75. B = (5, 13)

76. C = (11, 13)

77. D = (14, 5)

78. B

79. $7.2 \times 7.5 = \$54$

80. $60\sqrt{2} = 84.84$ ft