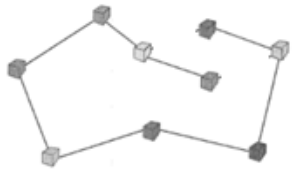
Answer Key

1. B
   Black: 9.5×2 = 19
   Gray: 11 ×1 = 11
   19 + 11 = 30
2. E
   88
   8 + 8 = 16
3. B
   Say, $x > y$.
   $x + y = 2y + 2\frac{x-y}{2}$ must be even
4. A
   The number is less than 35.
   To be a 3-multiple, it is 33.
5. E
   18 – 12 = 6
   6 + 18 = 24
6. C
   To be symmetric, both sides got to have the same number of squares.
   10÷2 = 5
7. D
   $\frac{1}{3}-\frac{1}{5}=\frac{2}{15}$
8. E
   R: x + 10
   Y: x
   G: x – 10

   Since 2(G – 10) = Y + 10
   $2(x – 20) = x + 10$
   $x = 50$
   R = x + 10 = 60
9. E
   2×3×19 = 114
   5×23 = 115
   114 + 115 = 229
10. C



11. A
    $n - \frac{1}{n} = \frac{n^2-1}{n} = \frac{(n-1)(n+1)}{n}$, which is irreducible.
12. D
13. C
    1×1
    1×2
    1×4
    1×5
    2×5
14. B
    5+4+5+4+5 = 23
15. E
    210÷7 = 30
    30 = 2×3×5 = LCM(1, 2, 3, 5)
    The four numbers are: 7, 14, 21, and 35
    Sum = 7×(1+2+3+5) = 77
16. 3×4 = 12
    20 - 12 = 8
    8 ÷ 4 = $2.00
17. 2×2 = $4.00
18. $\frac{3}{8}$
19. A = 35
20. $\frac{3}{8}$
21. 72÷6 = 12 (width)
    2(6+12) = 36 ft
22. Use the first pattern (##***):
    3:2
23. 1 hr 15 min
24. 65
25. 12 = 4×3
    15 = 5×3
    The least common multiple is 3×4×5 = 60.
26. .064
27. 70÷2 = 35 dimes = $3.50
28. the area of A = 464 - 20^2 = 64 = 8^2
    the perimeter of A = 4×8 = 32 in
29. 16
    $\frac{15}{4}=\frac{60}{16}$
30. 200
31. $\frac{2400000}{3000000} = \frac{24}{30}$ = $0.80
32. 2
33. 30
34. 343 ÷ 7 = $49.00
35. 9,500 + 2,100 = 11,600
36. B
37. C
38. B
    $\frac{1}{3} - \frac{1}{4} < \frac{1}{6} < \frac{1}{6} + \frac{1}{5}$
    So,
    $\frac{1}{3} - \frac{1}{5} < \frac{1}{4} + \frac{1}{6}$
39. C
40. A
    $\frac{1}{3} + \frac{1}{4}$ = 0.33… + 0.25 = 0.58…
    $\frac{1}{2} + \frac{1}{6}$ = 0.5 + 0.16… = 0.66…
41. C

42. C
2.5×40 = 100 = 2×50..
43. C
44. B
(A) 3×3×3 = 27
(B) 3×12 = 36
45. B
46. B
8, 12, 9, 13, 10, 14, 11, 15, 12
47. D
26 – 3 = 23
23 – 3 = 20
48. C
17, 32, 19, 29, 21, 26, 23, ____, ____
26 – 3 = 23
23 + 2 = 25
49. A
10, 34, 12, 31, 14, 28, 16, ____, ____
28 – 3 = 25
16 + 2 = 18
50. D
664, 332, 340, 170, __, 89
664÷2 = 332
340÷2 = 170
178÷2 = 89
51. D
52. D
53. D
54. D
25, 16, 9, 4, 1
Left top corner
55. A
56. A
57. D
Subtract and rotate
58. D
59. D
3×8 = 24
6×7 = 42
4×9 = 36
therefore
8×2 = 16
60. A
1
the numbers around the middle triangle are the sums of numbers in the same position around the end two triangles, for example 5 + 3 = 8.
61. A
In this series, 5 is added to the previous number; the number 70 is inserted as every third number.
62. D
+7
63. D
+5
64. C
The letters decrease by 1; the numbers are multiplied by 2.
65. B
75, 65, 85, 55, 45, 85, 35, 25. 85
66. 80%
40/50 = 0.8 = 80%
67. 100
.4×250 = 100
68. $\frac{7}{10}$
Since $\frac{42}{60} = \frac{7}{10}$
69. 43%×60 = 25.8
70. $1\frac{1}{5}$
71. 25%
5÷20 = 0.25 = 25%
72. 12
73. 18
.5×□ = 9, □ = 18
74. 31
75. 70 = 38.5÷55%
76. 120
.6×200 = 120
77. 21 = .70×30
78. 72÷120 = .6 = 60%
79. 0.313
75.12 ÷ 240 = 0.313
80. 80%
81. 10 (= 20%×50 = 0.2×50)
82. -42.4
83. 1495
84. -5
85. 80
86. $\frac{0.6}{0.4} = \frac{21}{14}$
87. 3.49
88. 5
89. 1269
90. 21