Answer Key

1. C
2. E
3. A
4. C
    Must be a 3-multiple.
5. E
6. C
7. E
    They are all equal to $\frac{2}{3}$.
8. B
9. A
    L: 2000
    K: 1000
    J: 1500
    J (1500), K (1000), L (2000)
10. D
11. C
12. C
13. D
14. C
    Draw the center line on each of the 5 figures. Only the white square in (C) meets this line in 90°.
15. E
16. 11 + 29 = 40 (perimeter)
    40÷4 = 10
    $10^2 = \underline{100}$
17. 2(012) 6 numbers
    1(022) 3 numbers
    tot = 9 numbers
18. 250×0.8 = 200 (red)
    250×0.2 = 50 (blue)
    50×3 = 150 (red must stay)
    200 − 150 = 50

19. 2×(8.6+6.4) = 30
20. Let $x + 2$ be # of chests.
    $9x = 6(x + 2) + 3$
    $3x = 2x + 4 + 1$
    $x = 5$
    $9x = \underline{45}$
21. 6 faces, so 6×2 = 12 (x's)
    4 spatial diagonals (y's)
    12 + 4 = 16
22. 10×4×3 = 120
    20 + 19 + 18 + 17 + 16 + 15 = 105
    105 + 14 = 119
    The nearest number is 7 hours. Not 8 hours.
23. LCM(5, 4) = 20
    $20 \times \frac{2}{5} = 8$
    $20 \times \frac{3}{4} = 15$
    8 + 15 − 20 = 3
24. $(1 + \frac{1}{4}) : (1 + \frac{1}{2}) = 1.25 : 1.5 = \underline{5:6}$
25. {123} and {234} are multiple of 3.
    {124} and {134} are not.
    So, the probability is $\frac{1}{2}$ or 50%.

Bonus
1) $n = \underline{14}$
$2^{10} = 1024$
$2^{13} = 8192$
$2^{14} = 16348$

2) If their average is 100, their sum is 500.
Let $s = t = u = v = 120$. So, their sum is 480.

$r = 500 - 480 = \underline{20}$