Answers:

1. 22950
2. 16303
3. 7/72
4. .1
5. -2
6. 35
7. 19/6
8. 2
9. 168
10. -10
11. 105
12. 7
13. 2
14. 15051
15. 16
16. 594
17. 12
18. 60
19. 501

Solutions:

1. 1275 x 18 = 22950.

2. 16303

3. Area of a regular hexagon is the same as the area of 6 equilateral triangles or , where here s = 10. So plugging in yields .

4. Each die must have at least a value of 1. This leaves 8-3=5 left. This is to be distributed amongst the 3 die, so the number of combinations if (5+2) choose 2 = 21. There are possibilities. So the probability is 7/72.

5. The left hand side reduces to

6.

7. 🡪 🡪 Thus, a = 1, b = -5, and c = -7. So, abc = 35.

8. ; . 🡪 .

9. . For a polynomial in the form Axn+Bxn-1+Cxn-2+ … + Dx + F = 0, the sum of the roots are given by –B/A. Hence, here the sum of the roots are 2.

10. 🡪 . Volume of sphere =

11.

12. Use Heron’s formula: , where p = half the perimeter, to get A = .

13. Factors: 1,2,3,4,5,6,10,12,15,20,30,60 -> Sum=168

14. Let z=a+bi. 2a-a=15, 2(-b)-(b)=2. So Re(z)=15, Im(z)=-2/3, The product = -10.

15. =

16.

17.

18. ends in 7, so 7-5 = 2.

19. Number of terms in a trinomial expansion is (n+1)(n+2)/2, where n = the exponent. Plugging in n=172 yields 15051.

20. F + V = E + 2 🡪 12 + 6 = E + 2 🡪 E = 16

21. 10 = 360/n 🡪 n=36; number of diagonals = n(n-3)/2 = 594.

22. a=2b+1 and a+b=34⬄ 3b+1=34⬄b=11 and a=23. Thus, |a-b|=12.

23.

24. ·

25. Number of 0’s due to multiples of 5: 402; extra due to multiples of 25: 80; extra due to multiples of 125: 16; extra due to multiples of 625: 3 = 501 zeros.