# 附录二 GRE 数学常用公式

1. Permutation: $P_n^m = \frac{n!}{(n-m)!} = n(n-1)(n-2).....(n-m+1)$

2. Combination: $C_n^m = \frac{n!}{m!(n-m)!} = \frac{n(n-1)(n-2).....(n-m+1)}{1\times 2\times 3.....m}$

3. $Discount = Cost \times rate\, of\ Discount$

4. The number of positive factors of $Z = x^a \cdot y^b \cdot z^c\,(x, y, z\ is\ prime\ number), n = (a+1)(b+1)(c+1)$

5. Quadratic formula $x = \frac{1}{2a}(-b \pm \sqrt{b^2 - 4ac})$

6. Arithmetic progression $a_n = a_1 + (n-1)d, \quad S_n = \frac{n(a_1 + a_n)}{2} = na_1 + \frac{n(n-1)}{2}d$

7. Geometric progression $a_n = a_1 q^{(n-1)}, \quad S_n = \frac{a_1(1-q^n)}{1-q}$

8. Distance between points (x,y) and (a,b) is $\sqrt{(x-a)^2(y-b)^2}$

9. Area of triangle $= \frac{1}{2}bh$

10. Special formula of area of triangle $= \sqrt{a(s-a)(s-b)(s-c)}, \quad s = \frac{1}{2}(a+b+c)$

11. Area of rectangular $= lw$

12. Area of parallelogram $= bh$

13. Area of a rhombus $= \frac{Product\ of\ two\ diagonals}{2}$

14. Area of a trapezoid $= \frac{(b_1 + b_2)}{2}h$

15. Volume of cubic solid $= a^3$

16. Volume of rectangular solid $= l \times w \times h$

17. Volume of right circular cylinder $= nr^2 \cdot h$

18. Volume of right circular cone $= \frac{1}{3}\pi r^2 \cdot h$

19. Volume of ball $= \frac{4}{3}\pi r^3$