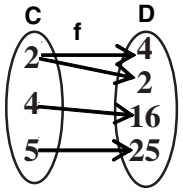
X- MATHEMATICS
ONE MARKS
1. SETS AND FUNCTIONS

1. For two sets A and B, $A \cup B = A$ if and only if **$B \subseteq A$**
2. If $A \subset B$, then $A \cap B$ is **A**
3. For any two sets P and Q, $P \cap Q$ is **$\{x : x \in P$ and $x \in Q\}$**
4. If A= { p, q, r, s }, B = { r, s, t, u }, then A\B is **{ p, q }**
5. If n[P(A)] = 64, then n(A) is **6**
6. For any three sets A, B and C, $A \cap (B \cup C)$ is **$(A \cap B) \cup (A \cap C)$**
7. For any two sets A and B, $\{(A \setminus B) \cup (B \setminus A)\} \cap (A \cap B)$ is ϕ
8. $A \setminus B = A \cap B$ true or false? **false**
9. For any three sets A, B and C, $B \setminus (A \cup C)$ is **$(B \setminus A) \cap (B \setminus C)$**
10. If n(A) = 20 , n(B) = 30 and $n(A \cup B) = 40$, then $n(A \cap B)$ is equal to **10**
11. If { (x, 2), (4, y) } represents an identity function, then (x,y) is **(2, 4)**
12. If { (7, 11), (5, a) } represents a constant function, then the value of 'a' is **11**
13. Given f (x) = $(-1)^x$ is a function from N to Z. Then the range of f is **{ 1, – 1 }**
14. If f = { (6, 3), (8, 9), (5, 3), (–1, 6) }, then the pre-images of 3 are **6 and 5**
15. Let A = { 1, 3, 4, 7, 11 }, B = {–1, 1, 2, 5, 7, 9 } and f : A $\rightarrow$ B be given by f = { (1, –1), (3, 2), (4, 1), (7, 5), (11, 9) }. Then f is **one-one**
16. 

The given diagram represents **not a function**
17. If A = { 5, 6, 7 }, B = { 1, 2, 3, 4, 5 } and f : A $\rightarrow$ B is defined by f (x) = x - 2, then the range of f is **{ 3, 4, 5 }**
18. If f(x) = x^2 + 5, then f(- 4) = **21**
19. If the range of a function is a singleton set, then it is **a constant function**
20. If f : A $\rightarrow$ B is a bijective function and if n(A) = 5 , then n(B) is equal to **5**

2. SEQUENCES AND SERIES OF REAL NUMBERS

1. Every function represents a sequence is true or false? **False**
2. The 8th term of the sequence 1, 1, 2, 3, 5, 8, ... is **21**
3. The next term of $\frac{1}{20}$ in the sequence $\frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \frac{1}{20}$ ..... is **1**
4. If a, b, c, ℓ, m are in A.P, then the value of a - 4b + 6c - 4ℓ + m is **0**
5. If a, b, c are in A.P. then $\frac{a-b}{b-c}$ is equal to **1**
6. If the nth term of a sequence is 100 n +10, then the sequence is **an A.P.**
7. If a_1 , a_2 , a_3 ..... are in A.P. such that $\frac{a_4}{a_7} = \frac{3}{2}$, then the 13th term of the A.P. is **0**

8. If the sequence a_1 , a_2 , a_3 ,.... is in A.P. , then the sequence a_5 , a_{10} , a_{15} , ... is **an A.P.**
9. If k+2, 4k–6, 3k–2 are the three consecutive terms of an A.P, then the value of k is **3**
10. If a, b, c, ℓ, m. n are in A.P., then 3a+7, 3b+7, 3c+7, 3ℓ+7, 3m+7, 3n+7 form **an A.P.**
11. If the third term of a G.P is 2, then the product of first 5 terms is $\mathbf{2^5}$
12. If a, b, c are in G.P, then $\frac{a-b}{b-c}$ is equal to $\frac{\mathbf{a}}{\mathbf{b}}$
13. If x, $2x + 2$, $3x + 3$ are in G.P, then $5x$, $10x + 10$, $15x + 15$ form **a G.P.**
14. The sequence –3, –3, –3,..... is **both A.P. and G.P.**
15. If the product of the first four consecutive terms of a G.P is 256 and if the common ratio is 4 and the first term is positive, then its 3rd term is **8**
16. In a G.P, $t_2 = \frac{3}{5}$ and $t_3 = \frac{1}{5}$. Then the common ratio is $\frac{\mathbf{1}}{\mathbf{3}}$.
17. If $x \neq 0$, then $1 + \sec x + \sec^2 x + \sec^3 x + \sec^4 x + \sec^5 x$ is equal to **$(1 + \sec x)(1 + \sec^2 x + \sec^4 x)$**
18. If the n^{th} term of an A.P. is $t_n = 3 - 5n$, then the sum of the first n terms is $\frac{\mathbf{n}}{\mathbf{2}}\mathbf{[1-5n]}$
19. The common ratio of the G.P. a^{m-n} , a^m, a^{m+n} is $\mathbf{a^n}$
20. If $1 + 2 + 3 + \ldots + n = k$ then $1^3 + 2^3 + ... + n^3$ is equal to $\mathbf{k^2}$

3. ALGEBRA

1. If the system $6x – 2y = 3$, $kx – y = 2$ has a unique solution, then $\mathbf{k \neq 3}$
2. A system of two linear equations in two variables is inconsistent, if their graphs **do not intersect at any point**
3. The system of equations $x –4y = 8$, $3x –12y = 24$ **has infinitely many solutions**
4. If one zero of the polynomial $p(x) = (k+4)x^2 + 13x + 3k$ is reciprocal of the other, then k is equal to **2.**
5. The sum of two zeros of the polynomial $f(x) = 2x^2 + (p+3)x + 5$ is zero, then the value of p is **-3.**
6. The remainder when $x^2 - 2x + 7$ is divided by $x + 4$ is **31**
7. The quotient when $x^3 - 5x^2 + 7x - 4$ is divided by $x - 1$ is $\mathbf{x^2 - 4x + 3}$
8. The GCD of $(x^3 + 1)$ and $x^4 - 1$ is $\mathbf{x + 1}$
9. The GCD of $x^2 - 2xy + y^2$ and $x^4 - y^4$ is $\mathbf{x–y}$
10. The LCM of $x^3 - a^3$ and $(x - a)^2$ is $\mathbf{(x - a)^2 (x^2 + ax + a^2)}$
11. The LCM of a^k, a^{k+3}, a^{k+5} where $k \in N$ is $\mathbf{a^{k+5}}$
12. The lowest form of the rational expression $\frac{x^2+5x+6}{x^2-x-6}$ is $\frac{x+3}{x-3}$
13. If $\frac{a+b}{a-b}$ and $\frac{a^3-b^3}{a^3+b^3}$ are the two rational expressions, then their product is $\frac{\mathbf{a^2+ab+b^2}}{\mathbf{a^2-ab+b^2}}$
14. On dividing $\frac{x^2-25}{x+3}$ by $\frac{x+5}{x^2-9}$ is equal to $\mathbf{(x - 5)(x - 3)}$
15. If $\frac{a^3}{a-b}$ is added with $\frac{b^3}{b-a}$, then the new expression is $\mathbf{a^2 + ab + b^2}$
16. The square root of 49 $(x^2 - 2xy + y^2)^2$ is $\mathbf{7(x - y)^2}$
17. The square root of $x^2 + y^2 + z^2 - 2xy + 2yz - 2zx$ is $\mathbf{|x - y - z|}$

18. The square root of $121x^4y^8z^6(\ell - m)^2$ is **$11x^2y^4|z^3(\ell-m)|$**

19. If $ax^2 + bx + c = 0$ has equal roots, then c is equal **$\frac{b^2}{4a}$**

20. If $x^2 + 5kx + 16 = 0$ has no real roots, then **$-\frac{8}{5} < k < \frac{8}{5}$**

21. A quadratic equation whose one root is 3, is **$x^2 - 5x + 6 = 0$**

22. The common root of the equations $x^2 - bx + c = 0$ and $x^2 + bx - a = 0$ is **$\frac{c+a}{2b}$**

23. If α, β are the roots of $ax^2 + bx + c = 0$, $a \neq 0$, then the wrong statement is **$\alpha+\beta = \frac{b}{a}$**

24. If α and β are the roots of $ax^2 + bx + c = 0$, then one of the quadratic equations whose roots are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$, is **$cx^2 + bx + a = 0$**

25. If b = a + c, then the equation $ax^2 + bx + c = 0$ has **real roots**

4. MATRICES

1. A diagonal matrix is a scalar matrix - is true or false. **False**
2. Matrix $A = [a_{ij}]_{m \times n}$ is a square matrix if ***m = n***
3. If $\begin{pmatrix} 3x+7 & 5 \\ y+1 & 2-3x \end{pmatrix} = \begin{pmatrix} 1 & y-2 \\ 8 & 8 \end{pmatrix}$ then the values of x and y are respectively **–2, 7**
4. If A = (1 -2 3) and B = $\begin{pmatrix} -1 \\ 2 \\ -3 \end{pmatrix}$ then A + B is **not defined**
5. If a matrix is of order 2 x 3, then the number of elements in the matrix is **6**
6. If $\begin{pmatrix} 8 & 4 \\ x & 8 \end{pmatrix} = 4\begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$ then the value of x is **4**
7. If A is of order 3 x 4 and B is of order 4 x 3, then the order of BA is **4 x 4**
8. If A x $\begin{pmatrix} 1 & 1 \\ 0 & 2 \end{pmatrix}$ = (1 2), then the order of A is **1 x 2**
9. If A and B are square matrices such that AB = I and BA = I, then B is **Multiplicative inverse matrix of A**
10. If $\begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$, then the values of x and y respectively, are **2 , 0**
11. If A = $\begin{pmatrix} 1 & -2 \\ -3 & 4 \end{pmatrix}$ and A + B = 0, then B is $\begin{pmatrix} -1 & 2 \\ 3 & -4 \end{pmatrix}$
12. If A = $\begin{pmatrix} 4 & -2 \\ 6 & -3 \end{pmatrix}$, then A^2 is $\begin{pmatrix} 4 & -2 \\ 6 & -3 \end{pmatrix}$
13. *A* is of order m x n and B is of order p x q, addition of A and B is possible only if ***m = p, n = q***

14. If $\begin{pmatrix} a & 3 \\ 1 & 2 \end{pmatrix}\begin{pmatrix} 2 \\ -1 \end{pmatrix}=\begin{pmatrix} 5 \\ 0 \end{pmatrix}$, then the value of a is **4**

15. If A = $\begin{pmatrix} \alpha & \beta \\ \gamma & -\alpha \end{pmatrix}$ is such that $A^2 = I$, then $1-\alpha^2-\beta\gamma=0$

16. If $A=[a_{ij}]_{2x2}$ and $a_{ij} = i + j$, then A = $\begin{pmatrix} \mathbf{2} & \mathbf{3} \\ \mathbf{3} & \mathbf{4} \end{pmatrix}$

17. $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} a & b \\ c & d \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$, then the values of a, b, c and d respectively are **-1, 0, 0, -1**

18. If A = $\begin{pmatrix} 7 & 2 \\ 1 & 3 \end{pmatrix}$ and A + B = $\begin{pmatrix} -1 & 0 \\ 2 & -4 \end{pmatrix}$, then the matrix B = $\begin{pmatrix} \mathbf{-8} & \mathbf{-2} \\ \mathbf{1} & \mathbf{-7} \end{pmatrix}$

19. If $(5 \quad x \quad 1)\begin{pmatrix} 2 \\ -1 \\ 3 \end{pmatrix} = (20)$, then the value of x is **-7**

20. $(AB)^T = B^TA^T$ is ture or false. **True**

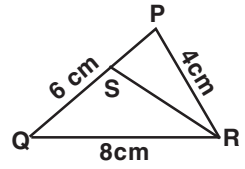
5. COORDINATE GEOMETRY

1. The midpoint of the line joining (a,- b) and (3a, 5b) is **(2a, 2b)**
2. The point P which divides the line segment joining the points A(1,- 3) and B(-3, 9) internally in the ratio 1:3 is **(0, 0)**
3. If the line segment joining the points A(3, 4) and B(14,- 3) meets the x-axis at P, then the ratio in which P divides the segment AB is **4 : 3**
4. The centroid of the triangle with vertices at (-2,- 5), (-2,12) and (10, - 1) is **(2, 2)**
5. If (1, 2), (4, 6), (x, 6) and (3, 2) are the vertices of a parallelogram taken in order, then the value of x is **6 sq.units.**
6. Area of the triangle formed by the points (0,0), (2, 0) and (0, 2) is **2 sq. unit**
7. Area of the quadrilateral formed by the points (1,1), (0,1), (0, 0) and (1, 0) is **1 sq. units**
8. The angle of inclination of a straight line parallel to x-axis is equal to **0°**
9. Slope of the line joining the points (3,- 2) and (-1, a) is $-\frac{3}{2}$, then the value of a is equal to **4**
10. Slope of the straight line which is perpendicular to the straight line joining the points (-2, 6) and (4, 8) is equal to **-3**
11. The point of intersection of the straight lines $9x$ - y - 2 = 0 and $2x$ + y - 9 = 0 is **(1, 7)**
12. The straight line $4x$ + 3y - 12 = 0 intersects the y- axis at **(0, 4)**
13. The slope of the straight line 7y - $2x$ = 11 is equal to $\frac{\mathbf{2}}{\mathbf{7}}$
14. The equation of a straight line passing through the point (2 , –7) and parallel to x-axis is **y =– 7**
15. The x and y-intercepts of the line $2x$ - 3y + 6 = 0, respectively are **-3, 2**
16. The centre of a circle is (-6, 4). If one end of the diameter of the circle is at (-12, 8), then the other end is at **(0, 0)**
17. The equation of the straight line passing through the origin and perpendicular to the straight line $2x$ + 3y - 7 = 0 is **$3x$ - 2y = 0**
18. The equation of a straight line parallel to y-axis and passing through the point (-2, 5) is **x + 2 = 0**

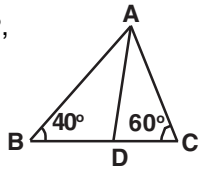
19. If the points (2, 5), (4, 6) and (a, a) are collinear, then the value of a is equal to **8**
20. If a straight line y = 2x + k passes through the point (1, 2), then the value of k is equal to **0**
21. The equation of a straight line having slope 3 and y-intercept -4 is **3x - y - 4 = 0**
22. The point of intersection of the straight lines y = 0 and x =- 4 is **(-4, 0)**
23. The value of k if the straight lines 3x+6y+7=0 and 2x+ky=5 are perpendicular is **–1**

6. GEOMETRY

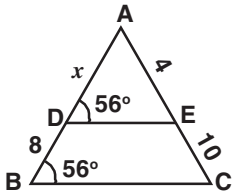
1. If a straight line intersects the sides AB and AC of a ΔABC at D and E respectively and is parallel to BC, then $\frac{AE}{AC} = \frac{\mathbf{AD}}{\mathbf{AB}}$
2. In ΔABC, DE is || to BC, meeting AB and AC at D and E. If AD = 3 cm, DB = 2 cm and AE = 2.7 cm , then AC is equal to **4.5 c**m
3. In ΔPQR, RS is the bisector of $\angle$R. If PQ = 6 cm, QR = 8 cm, RP = 4 cm then PS is equal to **2 cm**



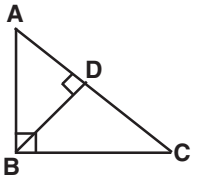
4. In figure, if $\frac{AB}{AC}=\frac{BD}{DC}$, $\angle$B = 40°, and $\angle$C = 60°, then $\angle$BAD = **40°**



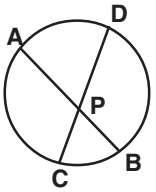
5. In the figure, the value of x is equal to **3 . 2**



6. In triangles ABC and DEF, $\angle$B = $\angle$E, $\angle$C = $\angle$F, then $\frac{\mathbf{AB}}{\mathbf{DE}}=\frac{\mathbf{BC}}{\mathbf{EF}}$
7. From the given figure, the wrong statement is **ΔABD ~ ΔABC**

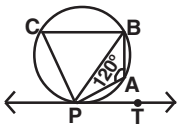


8. If a vertical stick 12 m long casts a shadow 8 m long on the ground and at the same time a tower casts a shadow 40 m long on the ground, then the height of the tower is **60 m**
9. The sides of two similar triangles are in the ratio 2:3, then their areas are in the ratio **4:9**
10. Triangles ABC and DEF are similar. If their areas are 100cm^2 and 49cm^2 respectively and BC is 8.2 cm then EF = **5.74 cm**
11. The perimeters of two similar triangles are 24 cm and 18 cm respectively. If one side of the first triangle is 8 cm, then the corresponding side of the other triangle is **6 cm**
12. AB and CD are two chords of a circle which when produced to meet at a point P such that AB = 5 cm, AP = 8 cm, and CD = 2 cm then PD = **4 cm**
13. In the adjoining figure, chords AB and CD intersect at P. If AB = 16 cm, PD = 8 cm, PC = 6 cm and AP >PB, then AP =**12 cm**

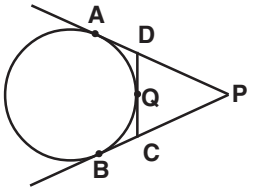


14. A point P is 26 cm away from the centre O of a circle and PT is the tangent drawn from P to the circle is 10 cm, then OT is equal to **24 cm**

15. In the figure, if $\angle$PAB = 120° then $\angle$BPT = **60°**



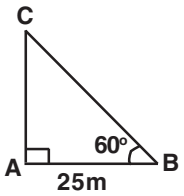
16. If the tangents PA and PB from an external point P to circle with centre O are inclined to each other at an angle of 40°, then $\angle$POA = **70°**
17. In the figure, PA and PB are tangents to the circle drawn from an external point P. Also CD is a tangent to the circle at Q. If PA = 8 cm and CQ = 3 cm, then PC is equal to **5 cm** .



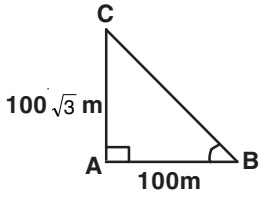
18. ΔABC is a right angled triangle where $\angle$B = 90° and BD $\perp$ AC**.** If BD = 8 cm,AD = 4 cm, then CD is **16 cm**
19. The areas of two similar triangles are 16 cm² and 36 cm² respectively. If the altitude of the first triangle is 3 cm, then the corresponding altitude of the other triangle is **4.5 cm**
20. The perimeter of two similar triangles ΔABC and ΔDEF are 36 cm and 24 cm respectively. If DE = 10 cm, then AB is **15 cm**

7. TRIGONOMETRY

1. $(1-\sin^2\theta)\sec^2\theta$ = **1**
2. $(1+\tan^2\theta)\sin^2\theta$ = **$\tan^2\theta$**
3. $(1-\cos^2\theta)(1+\cot^2\theta)$ = **1**
4. $\sin(90^0-\theta)\cos\theta + \cos(90^0-\theta)\sin\theta$ = **1**
5. $1 - \frac{\sin^2\theta}{1+\cos\theta}$ = **$\cos\theta$**
6. $\cos^4 x - \sin^4 x$ = **$2\cos^2 x - 1$**
7. If $\tan\theta = \frac{a}{x}$, then the value of $\frac{x}{\sqrt{a^2+x^2}}$ = **$\cos\theta$**
8. If x = a $\sec\theta$, y = b $\tan\theta$, then the value of $\frac{x^2}{a^2} - \frac{y^2}{b^2}$ = **1**
9. $\frac{\sec\theta}{\cot\theta+\tan\theta}$ = **$\sin\theta$**
10. $\frac{\sin(90^o-\theta)\sin\theta}{\tan\theta} + \frac{\cos(90^o-\theta)\cos\theta}{\cot\theta}$ = **1**
11. In the adjoining figure, AC = **$25\sqrt{3}$ m**

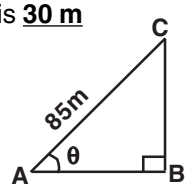


12. In the adjoining figure $\angle$ABC = **60°**



13. A man is 28.5 m away from a tower. His eye level above the ground is 1.5 m. The angle of elevation of the tower from his eyes is 45°. Then the height of the tower is **30 m**

14. In the adjoining figure, $\sin\theta = \frac{15}{17}$. Then BC = **75 m**



15. $(1 + \tan^2\theta)(1-\sin\theta)(1+\sin\theta) =$ **$\sin^2\theta + \cos^2\theta$**
16. $(1 + \cot^2\theta)(1- \cos\theta)(1 + \cos\theta) =$ **$\sec^2\theta - \tan^2\theta$**
17. $(\cos^2\theta - 1)(\cot^2\theta + 1) + 1 =$ **0**
18. $\frac{1+\tan^2\theta}{1+\cot^2\theta} =$ **$\tan^2\theta$**
19. $\sin^2\theta + \frac{1}{1+\tan^2\theta} =$ **$\text{cosec}^2\theta - \cot^2\theta$**
20. $9\tan^2\theta - 9\sec^2\theta =$ **-9**

8. MENSURATION

1. The curved surface area of a right circular cylinder of radius 1 cm and height 1 cm is equal to **2π cm^2**
2. The total surface area of a solid right circular cylinder whose radius is half of its height h is equal to **$\frac{3}{2}\pi h^2$ sq.units**
3. Base area of a right circular cylinder is 80 cm^2 . If its height is 5 cm, then the volume is equal to **400 cm^3**
4. If the total surface area of a solid right circular cylinder is 200πcm^2 and its radius is 5 cm, then the sum of its height and radius is **20 cm**
5. The curved surface area of a right circular cylinder whose radius is a units and height is b units, is equal to **2πab sq.cm**
6. Radius and height of a right circular cone and that of a right circular cylinder are respectively, equal. If the volume of the cylinder is 120 cm^3, then the volume of the cone is equal to **40 cm^3**
7. If the diameter and height of a right circular cone are 12 cm and 8 cm respectively, then the slant height is **10 cm**
8. If the circumference at the base of a right circular cone and the slant height are 120π cm and 10 cm respectively, then the curved surface area of the cone is equal to **600π cm^2**
9. If the volume and the base area of a right circular cone are 48π cm^3 and 12π cm^2 respectively, then the height of the cone is equal to **12 cm**
10. If the height and the base area of a right circular cone are 5 cm and 48 sq. cm respectively, then the volume of the cone is equal to **80 cm^3**
11. The ratios of the respective heights and the respective radii of two cylinders are 1:2 and 2:1 respectively. Then their respective volumes are in the ratio **2 : 1**
12. If the radius of a sphere is 2 cm , then the curved surface area of the sphere is equal to **16π cm^2**
13. The total surface area of a solid hemisphere of diameter 2 cm is equal to **3π cm^2**
14. If the volume of a sphere is $\frac{9}{16}\pi$ cu.cm, then its radius is **$\frac{3}{4}$ cm**

15. The surface areas of two spheres are in the ratio of 9 : 25. Then their volumes are in the ratio **27 : 125.**
16. The total surface area of a solid hemisphere whose radius is a units, is equal to **$3\pi a^2$ sq.units**
17. If the surface area of a sphere is 100π cm^2, then its radius is equal to **5 cm**
18. If the surface area of a sphere is 36π cm^2, then the volume of the sphere is equal to **36π cm^3**
19. If the total surface area of a solid hemisphere is 12π cm^2 then its curved surface area is equal to **8π cm^2**
20. If the radius of a sphere is half of the radius of another sphere, then their respective volumes are in the ratio **1 : 8**
21. Curved surface area of solid sphere is 24 cm^2. If the sphere is divided into two hemispheres, then the total surface area of one of the hemispheres is **18 cm^2**
22. Two right circular cones have equal radii. If their slant heights are in the ratio 4 : 3, then their respective curved surface areas are in the ratio **4 : 3**

11. STATISTICS

1. The range of the first 10 prime numbers 2, 3, 5, 7, 11, 13, 17, 19, 23 , 29 is **27**
2. The least value in a collection of data is 14.1. If the range of the collection is 28.4, then the greatest value of the collection is **42.5**
3. The greatest value of a collection of data is 72 and the least value is 28. Then the coefficient of range is **0.44**
4. For a collection of 11 items, Σx = 132, then the arithmetic mean is **12**
5. For any collection of *n* items, $\Sigma(x - \bar{x})$ = **0**
6. For any collection of *n* items, $(\Sigma x) - \bar{x}$ = $(n-1)\bar{x}$
7. If *t* is the standard deviation of *x, y. z*, then the standard deviation of $x + 5$, $y + 5$, $z + 5$ is ***t***
8. If the standard deviation of a set of data is 1.6, then the variance is **2.56**
9. If the variance of a data is 12.25, then the SD is **3.5**
10. Variance of the first 11 natural numbers is **10**
11. The variance of 10, 10, 10, 10, 10 is **0**
12. If the variance of 14, 18, 22, 26, 30 is 32, then the variance of 28, 36,44,52,60 is **128**
13. Standard deviation of a collection of data is $2\sqrt{2}$. If each value is multiplied by 3, then the standard deviation of the new data is **$6\sqrt{2}$**
14. Given $\Sigma(x - \bar{x})^2$ = 48, $\bar{x}$ = 20 and *n* = 12. The coefficient of variation is **10**
15. Mean and standard deviation of a data are 48 and 12 respectively. The coefficient of variation is **25**

12. PROBABILITY

1. If ϕ is an impossible event, then P(ϕ) = **0**
2. If S is the sample space of a random experiment, then P(S) = **1**
3. If p is the probability of an event A, then p satisfies **$0 \leq p \leq 1$**
4. Let A and B be any two events and S be the corresponding sample space. Then P($\bar{A} \cap B$) = **P(B) – P(A$\cap$B)**

5. The probability that a student will score centum in mathematics is $\frac{4}{5}$. The probability that he will not score centum is $\frac{\mathbf{1}}{\mathbf{5}}$
6. If A and B are two events such that
   P(A) = 0.25, P(B) = 0.05 and P(A∩B) = 0.14, then P(A∪B) = **0.16**
7. There are 6 defective items in a sample of 20 items. One item is drawn at random. The probability that it is a non-defective item is $\frac{\mathbf{7}}{\mathbf{10}}$
8. If A and B are mutually exclusive events and S is the sample space such that P(A) = $\frac{1}{3}$ P(B) and S = A∪B, then P(A) = $\frac{\mathbf{1}}{\mathbf{4}}$
9. The probabilities of three mutually exclusive events A, B and C are given by $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{5}{12}$ Then P(A∪B∪C) is **1**
10. If P(A) = 0.25, P(B) = 0.50, P(A∩B) = 0.14 then P(neither A nor B) = **0.39**
11. A bag contains 5 black balls, 4 white balls and 3 red balls. If a ball is selected at random, the probability that it is not red is $\frac{\mathbf{3}}{\mathbf{4}}$
12. Two dice are thrown simultaneously. The probability of getting a doublet is $\frac{\mathbf{1}}{\mathbf{6}}$
13. A fair die is thrown once. The probability of getting a prime or composite number is $\frac{\mathbf{5}}{\mathbf{6}}$
14. Probability of getting 3 heads or 3 tails in tossing a coin 3 times is $\frac{\mathbf{1}}{\mathbf{4}}$
15. A card is drawn from a pack of 52 cards at random. The probability of getting neither an ace nor a king card is $\frac{\mathbf{11}}{\mathbf{13}}$
16. The probability that a leap year will have 53 Fridays or 53 Saturdays is $\frac{\mathbf{3}}{\mathbf{7}}$
17. The probability that a non-leap year will have 53 Sundays and 53 Mondays is **0**
18. The probability of selecting a queen of hearts when a card is drawn from a pack of 52 playing cards is $\frac{\mathbf{1}}{\mathbf{52}}$
19. Probability of sure event is **1**
20. The outcome of a random experiment results in either success or failure. If the probability of success is twice the probability of failure, then the probability of success is $\frac{\mathbf{2}}{\mathbf{3}}$