Unit 1- Functions and Limits

1	(1)If a function f is defined as f: Z→Z, f(x) $=x^2 - 3$, then find the range of the function. (2) If a function f is defined as f: Z→Z, f(x) $=x^2 + 3$ then find the range of the function. (3) If a function f is defined as f: Z→Z, f(x) $= 2x^2$, then find the range of the function. (4) If a function f is defined as f : Z→Z, f(x)$= 2x^2 + 1$ then Find the range of the function. (5) If a function f is defined as f: Z→Z, f(x) $= 3x^2 - 5$ then find the range of the function. (6) If a function f is defined as f: Z→Z, f(x) $=x^2 + 4$, then find the range of the function (7)If a function f is defined as f: Z→Z, f(x) $=x^2 - 2$, then find the range of the function. (8)If a function f is defined as f: Z→Z, f(x) $=x^2 + 2$, then find the range of the function. (9) If a function f is defined as f: Z→Z, f(x) $=3x^2$, then find the range of the function. (10)If a function f is defined as f: Z→Z, f(x) $=2x^2 - 1$, then find the range of the function. (11)If a function f is defined as f: R→R, f(x) $=2x + 6$, then find the range of the function. (12)If a function f is defined as f: Z→Z, f(x) $=3x^2 + 5$, then find the range of the function.
2	Evaluate: (1) $\lim_{x\to 1} \frac{x^2+x-2}{x-1}$ (2) $\lim_{x\to 1} \frac{2x^2+2x-4}{x-1}$ (3) $\lim_{x\to 1} \frac{x^2-4x+3}{x^2+2x-3}$. (4) $\lim_{x\to 1} \frac{3x^2-12x+9}{x^2+2x-3}$. (5) $\lim_{x\to 1} \frac{x^2-6x+5}{2x^2-5x+3}$. (6) $\lim_{x\to 1} \frac{5x^2-30x+25}{2x^2-5x+3}$. (7) $\lim_{x\to 2} \frac{x^3-8}{x-2}$. (8) $\lim_{x\to -3} \frac{x^3+27}{x^2+5x+6}$. (9) $\lim_{x\to -3} \frac{4x^3+108}{x^2+5x+6}$. (10) $\lim_{x\to 2} \frac{x^3-x^2-5x+6}{x^2+5x+6}$ (11) $\lim_{x\to 1} \frac{x^2+x+2}{x+1}$ (12) $\lim_{x\to 1} \frac{2x^2+2x+4}{x+1}$ (13) $\lim_{x\to 1} \frac{(x-1)(x+2)}{x-1}$ (14) $\lim_{x\to 1} \frac{x^2-4x+3}{x^2+2x-3}$
3	(i)If a function f is defined by $f: R \to R, f(x) = 3x + 6$, find f^{-1}.)ii (If a function f is defined by $f: R \to R, f(x) = 2x + 10$, find f^{-1}. (iii) If a function f is defined as f : Z→Z, f(x) $= 4x^4 + 8$, find the range of the function. find f^{-1}. (iv) If a function f is defined by $f: R \to R, f(x) = 4x + 2$, find f^{-1}.
4	(i)If f(x) $= 2x - 3$ and g(x) $=x^2 - x + 7$, then find the values of fog (1). (ii))If f(x) $= 2x + 1$and g(x) $=x^2 - 2$, then find the values of fog and gof.
5	If f(x) $= 2x$ and g(x) $=x^2 - 3x + 1$, then find the values of fog (4).

6	(i) If $f(x) = e^x$, prove that $\text{๙if}(x) = e^x$ (i) $f(x+y) = f(x) \cdot f(y)$ (ii) $f(x-y) = \frac{f(x)}{f(y)}$. (ii) If $f(x) = \log x$, prove that (a) $f(x) + f(y) = f(xy)$ (b) $f(x) - f(y) = f\left(\frac{x}{y}\right)$ (iii)) If $f(x) = e^{2x}$, prove that $\text{๙if}(x) = e^x$ (i) $f(x+y) = f(x) \cdot f(y)$ (ii) $f(x-y) = \frac{f(x)}{f(y)}$.

7	Evaluate: (i) $\lim\limits_{n \to \infty}\left[\sqrt{n^2 + n + 1} - n\right]$ (ii) $\lim\limits_{n \to \infty}\left[\sqrt{n^2 + n + 1} - \sqrt{n^2 + 1}\right]$
	
	     (iii) $\lim\limits_{x \to \infty} \sqrt{x}\left[\sqrt{x + p} - \sqrt{x}\right].$ (iv) $\lim\limits_{x \to 2} \frac{x^3 - 6x^2 + 11x - 6}{x^3 - 8}.$
	
	     (v) $\lim\limits_{x \to -2} \frac{x^3 + 6x^2 + 11x + 6}{5x^2 + 10x}.$ (vi) $\lim\limits_{x \to \infty}\left[\sqrt{x^2 + 2x} - \sqrt{x^2 - 3}\right]$
	
	     (vii) $\lim\limits_{x \to -2} \frac{2x^3 + 12x^2 + 22x + 12}{15x^2 + 30x}.$ (viii) $\lim\limits_{x \to 2} \frac{x^4 - 8x^2 + 16}{x^3 - 3x^2 + 4}.$
	
	     (ix) $\lim\limits_{x \to 2} \frac{3x^4 - 24x^2 + 48}{x^3 - 3x^2 + 4}.$ (x) $\lim\limits_{x \to 1} \frac{2x^2 - 16x + 14}{7x^2 - 6x - 1}.$

8	If $f(x) = \frac{b + ax}{bx + a}$, then prove that $f(x) \cdot f\left(\frac{1}{x}\right) = 1$
9	(A)If $f(x) = \frac{1-x}{1+x}$, prove that(i) $f(x) + f\left(\frac{1}{x}\right) = 0$. (ii) $f(x) - f\left(\frac{1}{x}\right) = 2f(x)$. (iii) $f(x) \cdot f(-x) = 1$. (B)If $f(y) = \frac{1+y}{1-y}$, prove that (i) $f(y) - f\left(\frac{1}{y}\right) = 2f(y)$. (ii) $f(y) \cdot f(-y) = 1$.

Unit 2 Differentiation

1	Differentiate the following with respect to 'x': (I) $y = e^x$ (II) $y = x^2 + e^x$ (III) $y = \sin x + \cos x$ (IV) $y = (\log x) - 3$ (V) $y = \cos x - 6$ (VI) $y = \log x$ (VII) $y = x^3 - 1$ VIII $(y = x^2$ (IX) $(y = x^3$ (X) $y = 2x^4$
2	Find $\frac{dy}{dx}$ (i) $y = 2\log x$ (ii) $y = \log x$ (iii) $y = x - 4$

	(iv) $y = \tan x$
	(v) $y = e^x$
	(vi) $y = x^2 - 3$
	(vii) $y = x^4 + 1$
	(viii) $y = \sin x$ (ix) $y = \cos x$
	x) $y = e^x \sin x$ (xi) $y = e^x \cos x$ (xii) $\frac{lnx}{x}$ (xiii) $\frac{lnx}{cosx}$
3	(i)Find $\frac{d^2y}{dx^2}$ if $y = x^3$
	(ii)) If $y = x + 1$ then find $\frac{d^2y}{dx^2}$
	)iii (Find $\frac{d^2y}{dx^2}$ if $y = x^2$
4	Find $\frac{dy}{dx}$ if $x = at^2$ and $y = 2at$
5	If $y = 2e^{3x} + 3e^{-2x}$, then prove that $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 6y = 0$.
6	Using the definition of derivation find the derivative of (i) x^3 (ii) x^2
7	(i)If $y = \log \sin x^2$ then obtain $\frac{dy}{dx}$.
	(ii) Find $\frac{dy}{dx}$ where $y = \log \sin x + \log \cos x$.
	(iii) If $y = \log \cos x - \log \sin x + 1$ then find $\frac{dy}{dx}$.
	(iv) Obtain $\frac{dy}{dx}$ for , $y = x^3 \sin(logx)$.
8	Differentiate the given terms with respect to x:
	(i) $y = e^x . 3^x . x^3$ (ii) $\frac{5}{x^3-3}$ (iii) $y = \log(\log x)$ (iv) $y = \left(x + \frac{2}{x+3}\right)\left(\frac{2x-1}{x^2+3x+2}\right)$
	(v) $y = \cos(sinx)$ (vi) $y = \sin x - \cos x - \log x$ (vi)) $y = (3x - 4)^5$
	(vii) $y = \left(1 + \frac{1}{x}\right)\left(\frac{3x^2}{x^2+6x+5}\right)$
9	(i)If the equation of motion of a particle is :$s = t^3 - 6t^2 + 9t + 6$, find its velocity
	(ii) If the equation of motion of a particle is : $s = 2t^3 + 6t^2 - 4t + 10$, find its velocity
	)iii (If the equation of motion of a particle is: $s = t^3 + 2t^2 - 3t - 2$, find its velocity
	(iv) If the equation of motion of a particle is: $s = 2t^3 + 4t^2 - 8t - 3$, find its velocity
10	The equation of motion of a particle is s= $t^3 - 5t^2 + 3t + 1$, Find the time when the particle change its direction.

Unit 3 Integration

1	Find) શોધો) (1) $\int x^2 dx$ (2) $\int 3x^3 dx$ (3) $\int 2x^2 dx$) (4) $\int (x^3 dx)$ (4) $\int x^2 dx$ (5) $\int (1 + 2x) dx$
2	(1) $\int 1\, dx$ =? (2) $\int e^x\, dx$ =? (3) $\int (1 - 2x)\, dx$ =? (4) $\int \frac{1}{x} dx$ =? (5) $\int (\sin x - 1)\, dx$ =? (6) $\int (e^x + 1)\, dx$ =? (7) $\int \cos x\, dx$ =? (8) $\int \sin x\, dx$ =? (9) $\int x^4 dx$ (10) $\int x^3 dx$ (11) $\int x dx$ (12) $\int 2\, dx$ =? (13) $\int 3e^x\, dx$ =? (14) $\int \frac{2}{x} dx$ =? (15) $\int \sin x\, dx$ =?
3	Integrate the given function with respect to x, (1) $(\sin x + \cos x)$ (2) $3x^2 + 4x$ (3) $(\sin x - \cos x)$ (4)$(\cos x - 1)$ (5) $\int (e^x + 2)\, dx$ (6) $\int (x^2 + 2x)\, dx$
4	Evaluate) 1) $(\int_2^5 (x^3)\, dx$ (2) : $\int_1^3 (x^2)\, dx$ (3) $\int_2^3 (2x^4)\, dx$ (4)$\int_2^5 (x^2)\, dx$ (5)$\int_2^5 (x^4)\, dx$
5	Find the value of (1) $\int xe^x\, dx$ (2) $\int 3xe^x\, dx$ (3) $(\int_0^1 (4x^3 + 3x^2 + 2x + 1)\, dx$ (4) $\int \left(4x^3 - \frac{1}{x} + \sin x - e^x\right) dx$ (5) $\int \left(5x^2 - \frac{1}{x} + \sin x + 2e^x\right) dx$ (6) $\int_0^1 (4x^3 + 3x^2 + 2x + 1)\, dx$ (7) $\int \left(\frac{2+3\sin x}{cos^2 x}\right) dx$ (8) $\int_0^2 (3x^2 + 2x - 1)\, dx$ (9) $\int_0^1 (x^3 + x^2 + x + 1)\, dx$ (10) $\int \left(x^3 - \frac{1}{x} + \cos x - e^x\right) dx$ (11) $\int \left(3x^2 - \frac{1}{x} + 2\sin x + e^x\right) dx$ (12) $\int (5x^3 + 4x^2 + 3x + 1)dx$ (13) $\int x\cos x\, dx$ (14) $\int \left(3x^2 + \frac{1}{x} - \sin x - e^x\right) dx$ (15) $\int \left(\frac{4+6\sin x}{cos^2 x}\right) dx$
6	Integrate the following with respect to x: (1)$3x^2 + 5x - 7$ (2)$3x^2 + 5x - 7$ (3) $\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2$ (4) $\frac{x^2+5x+6}{x^2+2x}$ (5) $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)^2$ (6) $\frac{x^2+4x+4}{x^2+2x}$ (6) $\frac{x^2+7x+6}{x^2+x}$ (7) $\left(2\sqrt{x} + \frac{1}{2\sqrt{x}}\right)^2$ (8) $\frac{x^2+8x+7}{x^2+7x}$
7	Evaluate 1) $\int \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 dx$ (2) $\int \sqrt{1 + \sin 2x}\, dx$ (3) $\int (x - 3)^2\, dx$ (4) $\int \sqrt{1 - \sin 2x}\, dx$ (5)$\int (2x - 3)^2\, dx$
8	Evaluate (1) $\int (3x - 7)^9\, dx$ (2) $\int (2x - 7)^9\, dx$ (3) $\int \left(\frac{1-\cos 2x}{1+\cos 2x}\right) dx$ (4) $\int \left(\frac{1+\cos 2x}{1-\cos 2x}\right) dx$

9	Evaluate (i) $\int \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 dx$ (ii) $\int \cos (5x + 4) \, dx$

Unit 4 Differential Equations(First Order First Degree)

Question	Do as directed.
1	Find order and degree of the differential equation i) $\left(\frac{d^2y}{dx^2}\right)^3 + 3\left(\frac{dy}{dx}\right)^2 - 5y = 0$ ii) Solve : $\frac{dy}{dx} = x$ iii) $solve\ y\frac{dy}{dx} = x^2$ iv) Find Integrating Factor of $\frac{dy}{dx} + 5y = x^3$ v) $y^2\frac{dy}{dx} = x^2$ vi) $\frac{dy}{dx} = y$ vii) $\frac{dy}{dx} + \sin y = 0$ viii) $x^5\left(\frac{d^2y}{dx^2}\right)^4 + \left(\frac{dy}{dx}\right)^2 + \frac{x}{y}\left(\frac{dy}{dx}\right)^3 = 0$ ix) $\left(\frac{dy}{dx}\right)^2 + \frac{x}{y}\left(\frac{dy}{dx}\right) = 0$ x) $\left(\frac{d^2y}{dx^2}\right)^3 + \sin\left(\frac{dy}{dx}\right)^2 = 0$ xi) $\left(\frac{d^3y}{dx^3}\right)^3 + \sin\left(\frac{dy}{dx}\right) + 3y = 0$
2	i) Define the form of 1st order linear differential equation ii) Define General solution of the differential equation. iii) Define order of the differential equation.
3	The degree of the homogenous differential equation is i) $\frac{dy}{dx} = \frac{x^3+y^3}{x+y}$ ii) $\frac{dy}{dx} = \frac{x^4+y^4}{x+y}$
4	Solve the differential equation 1) $\frac{dy}{dx} + \frac{y}{x} = x^2$. 2) $x\left(\frac{dy}{dx}\right) = x + y$. 3) $\frac{dy}{dx} = x^2 + 2x + 3$ 4) $y\frac{dy}{dx} = x^3 - 3x^2 + 7$

	5) Solve the differential equation(ડીફરન્શીયલ ઇક્વેશન ઉકેલો): $\frac{dy}{dx} + 3y = e^{2x}$ 6) 6) $x(1 + y^2)dx - y(1 + x^2)dy = 0$ 7) $\frac{dy}{dx} + x^2 e^{-y} = 0$. 8) Solve the differential equation : $\frac{dy}{y} = (\tan x)dx$
5	(1) Verify that $y = cx + \frac{1}{c}$ is a solution of the differential equation $y\left(\frac{dy}{dx}\right) = x\left(\frac{dy}{dx}\right)^2 + 1$. Where C is arbitrary constant. (2)Verify that $y = e^x \sin x$ is the solution of differential equation $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 2y = 0$. (3)Verify that $y = e^{ax} \sin bx$ is a solution of differential equations $\frac{d^2y}{dx^2} - 2a\frac{dy}{dx} + (a^2 + b^2)y = 0$ (4)Verify that $y = e^{2x} \sin x$ is a solution of differential equations $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 5y = 0$.
6	Derive a differential equation for the family of line $y = mx + c$ (Where m and c are constant). Find the order and degree of the differential equation: $\left(\frac{d^2y}{dx^2}\right)^2 + \left(\frac{dy}{dx}\right)^3 + \sin y = 0$, Also Find Integrating Factor of $\frac{dy}{dx} - 2xy = \frac{1}{x}$ Derive a differential equation for the family of line $y = 2x + 3$

Unit- 5 Complex number

Question	Do as directed .

1	Find the principle argument of :
	   i) $1 + i$.
	   ii) $1 + \sqrt{3}i$.
	   iii) $2 + 2i$
	   iv) $2 + 2\sqrt{3}i$.
	   v) $3 + 3i$.

	vi) $3 + 3\sqrt{3}i.$ vii) $\sqrt{3} + i$. viii) $2\sqrt{3} + 2i$ ix) $3\sqrt{3} + 3i$ x) $4\sqrt{3} + 4i$ xi) $5+5i$ xii) $1 - \sqrt{3}i.$ xiii) $3 + 3i$ xiv) $11 + 11i$ xv) $2\sqrt{3} + 2i.$
2	Find the modulus of the complex number. i) $-3\sqrt{2} + 3\sqrt{2}i$ ii) $\sqrt{2} + \sqrt{7}i$. iii) $\sqrt{3} - \sqrt{6}i$. iv) $1 + 2\sqrt{6}i$ v) $\sqrt{6} + \sqrt{2}i$. vi) $\sqrt{5} - 3\sqrt{2}i$ vii) $\sqrt{2} + \sqrt{6}i$. viii) $2\sqrt{6} - 3\sqrt{2}i$ ix) $\sqrt{6} - \sqrt{2}i$. x) $-4\sqrt{2} + 3\sqrt{2}i$ xi) $\sqrt{5} - \sqrt{6}i$ xii) $\sqrt{6} + \sqrt{7}i$ xiii) $5 + 2\sqrt{6}i$ xiv) $\sqrt{7} + \sqrt{8}i$ xv) $\sqrt{5} + 4\sqrt{2}i$
3	Express the following complex number in polar form: i) $1 + i$ ii) $1 - i$. iii) $1 + \sqrt{3}i$ iv) $3 + 3\sqrt{3}i$ v) $2 + 2\sqrt{3}i$ vi) $2 + 2\sqrt{3}i$ vii) $2-2i$ viii) $7 + 7\sqrt{3}i$ ix) $\sqrt{3} - i$

4	Find the inverse complex number of complex number i) $\dfrac{2+3i}{4-3i}$ ii) $3 - 4i$ iii) $3 + 4i$ iv) $1 + 3i$ v) $5 + 3i$ vi) $2+7i$ vii) $3+2i$ viii) $5+2i$ ix) $5-4i$ x) $\dfrac{1-3i}{4-3i}$ xi) $3 - 5i$ xii) $8+3i$ xiii) $2-7i$
5	Simplify (1) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-3}\ (\cos 12\theta + i\sin 12\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{16}(\cos\theta - i\,\sin\theta)^{9}}$ (2) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-12}\ (\cos 12\theta + i\sin 12\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{16}(\cos 6\theta - i\,\sin 6\theta)^{6}}$ (3) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-3}\ (\cos 12\theta + i\sin 12\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{16}(\cos\theta - i\,\sin\theta)^{9}}$ (4) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-3}\ (\cos 3\theta + i\,\sin 3\theta)^{4}}{(\cos 4\theta + i\,\sin 4\theta)^{3}(\cos\theta - i\,\sin\theta)^{9}}$ (9) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-4}\ (\cos 12\theta + i\sin 12\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{16}\ \ (\cos 4\theta - i\,\sin 4\theta)^{3}}$ (11) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-3}\ (\cos 7\theta + i\,\sin 7\theta)^{4}}{(\cos 4\theta + i\,\sin 4\theta)^{7}\ \ (\cos\theta - i\,\sin\theta)^{9}}$ (12) $\dfrac{(\cos 5\theta + i\,\sin 5\theta)^{3}\ (\cos 2\theta - i\,\sin 2\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{5}\ (\cos 4\theta + i\,\sin 4\theta)^{-2}}$ (5) $\dfrac{(\cos 5\theta + i\,\sin 5\theta)^{-4}\ (\cos 3\theta + i\sin 3\theta)^{4}}{(\cos 4\theta + i\,\sin 4\theta)^{3}(\cos 4\theta - i\,\sin 4\theta)^{5}}$ (6) $\dfrac{(\cos 2\theta + i\,\sin 2\theta)^{3}\ (\cos 2\theta - i\sin 2\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{2}(\cos 4\theta + i\,\sin 4\theta)^{-2}}$ (7) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{4}\ (\cos 4\theta - i\sin 4\theta)^{5}}{(\cos 4\theta + i\,\sin 4\theta)^{3}(\cos 5\theta + i\,\sin 5\theta)^{-4}}$ (8) $\dfrac{(\cos 3\theta + i\,\sin 3\theta)^{-3}\ (\cos 11\theta + i\sin 11\theta)^{4}}{(\cos 4\theta + i\,\sin 4\theta)^{11}\ \ (\cos\theta - i\,\sin\theta)^{9}}$ (10) $\dfrac{(\cos 5\theta + i\,\sin 5\theta)^{-3}\ (\cos 12\theta + i\sin 12\theta)^{4}}{(\cos 3\theta + i\,\sin 3\theta)^{16}\ \ (\cos\theta - i\,\sin\theta)^{15}}$ (11) $\dfrac{(\cos 5\theta + i\,\sin 5\theta)^{-4}\ (\cos 2\theta + i\,\sin 2\theta)^{4}}{(\cos 4\theta + i\,\sin 4\theta)^{2}\ \ (\cos 4\theta - i\,\sin 4\theta)^{5}}$

6	Find the conjugate complex number and moduli of the complex number $\frac{1+i}{1-4i}$.
	Find the conjugate complex number and moduli of the complex number : $\frac{4+i}{2-3i}$.
	Find the conjugate complex number and moduli of the complex number $\frac{4-i}{2+3i}$.
	Find the conjugate complex number and moduli of the complex number $\frac{5+i}{2+3i}$.
	Find the conjugate complex number and moduli of the complex number $\frac{2-i}{1+3i}$
	Find the conjugate complex number and moduli of the complex number $\frac{2+i}{3+4i}$
	Find the conjugate complex number and moduli of the complex number $\frac{1-i}{1-4i}$
	Find the conjugate complex number and moduli of the complex number $\frac{2-8i}{1+i}$

Unit-6 STATISTICS

Question	Do as directed.

1	Find the median for the observation
	    i) 3,5,2,6,5
	    ii) 4,1,-2,0,1,2
	    iii) -3,7,9,5,7,8,2
	    iv) 18,12,27,35,26,21,16,24
	    v) 8,3,5,12,9,14,17,1,7

2	(I) Find the mode for the observation 3,2,6,5,7,3,8,10,3,14
	    (I) Find the mode for the observation 3,5,2,6,5
	    (I) Find the mode for the observation 4,1,-2,0,1,2

3	(I) What is mean of the first five even natural number?
	    (II) What is mean of the first five odd natural number?
	    (III) What is mean of the first five prime number?
	    (IV) What is mean of the first six multiple of five?
	    (I) What is mean of the first 6 prime number?
	    (II) What is mean of the first four prime number?
	    (I) What is mean of the first seven even natural number?

4	Find the mean for the observation
	    (I) 4,1,-2,0,1,2
	    (II) -2,-1,-1,1,2,4
	    (III) 3,5,2,6,5
	    (IV) -3,7,9,5,7,8,2

5	The dividends declared by 60 different companies in the year 2011−2012 are shown in the following table. Find the mean of the data.

Dividend (in %)	10	12	15	18	20	22	25
No. of companies	7	10	12	6	12	8	5

6	Find the median of the following data

X	2	5	6	8	10	12
F	2	8	10	7	8	3

7	The following table shows the number of children per family. Using the data, find the mean.

Number of children	0	1	2	3	4	5
Number of families	6	40	30	16	6	2

8	Find the median of the frequency distribution given in the following table.

Marks	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of students	3	7	12	15	8	3	2

9	Find the median of the following frequency distribution.

x_i	0	1	2	3	4
f_i	4	1	6	11	3

10	The following table shows the marks (out of 50) obtained by 100 students in an aptitude test. Calculate the mean of the given frequency distribution.

Marks	21-25	26-30	31-35	36-40	41-45	46-50
Number of students	8	10	24	30	12	16

11	The following table shows the number of children per family. Using the data, find the mean.

Number of children	0	1	2	3	4	5
Number of families	3	20	15	8	3	1

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