1. In fig (i) ABCD is a parallelogram in which $\angle \mathrm{DAB}=70^{\circ}, \angle \mathrm{DBC}=75^{\circ}$. Find x and y .
2. The adjacent angles of a parallelogram are $(5 x-3)^{0}$ and $(5 x-67)^{0}$. Find all the angles of the parallelogram.
3. If the opposite angles of a parallelogram are $(3 x-3)^{0}$ and $(6 x-69)^{0}$, find all the angles of the parallelogram.
4. In fig (ii) $\mathrm{AO}, \mathrm{BO}$ bisects $\angle \mathrm{A}, \angle \mathrm{B}$ of the $/ / \mathrm{gm} \mathrm{ABCD}$. Prove that $\angle \mathrm{AOB}=90^{\circ}$.
5. In fig (iii) the side AB of $/ / \mathrm{gm} \mathrm{ABCD}$ is produced to a point X such that $\mathrm{BX}=\mathrm{AB}$. Prove that DX bisects BC.
D
y
x
(iii)
$70^{0}$
A
y
C

A

B
fig (ii)

Fig (i)
6. In an isosceles $\triangle \mathrm{ABC}, \mathrm{AB}=\mathrm{AC} . \mathrm{D}, \mathrm{F}, \mathrm{E}$ are midpoints of the sides $\mathrm{BC}, \mathrm{CA}, \mathrm{AB}$ respectively. Show that $\mathrm{AD} \perp \mathrm{EF}$ and $\mathrm{AD}, \mathrm{EF}$ bisect each other.
7. In fig (iv) $\mathrm{P}, \mathrm{Q}$ are midpoints of the non-parallel sides AD and BC of a trapezium ABCD . Show that $\mathrm{PQ}=$ $1 / 2(A B+D C)$. (Hint: join AQ and produce it to meet DC produced at R )

8. If ABCD is a rectangle in which $\angle \mathrm{BAC}=35^{\circ}$, find $\angle \mathrm{DBC}$.
9. If $X, Y$ are the midpoints of sides $A B, C D$ of a parallelogram $A B C D$ respectively, show that $A X C Y$ is a //gm.

