Ex3 4) ICF of the value 3 sheets $= n_1 + n_2 + n_3 = 18 + 54 + 60 = 82$
its meaning is: 82 students used at most 3 double sheet papers $\left(\frac{1}{4}, \frac{1}{2}\right)$

5)a) $\bar{x} = \frac{n_1 x_1 + n_2 x_2^2 + n_3 x_3 + n_4 x_4}{N} = \frac{1\times 18 + 2\times 54 + \cdots + 4\times 8}{90}$

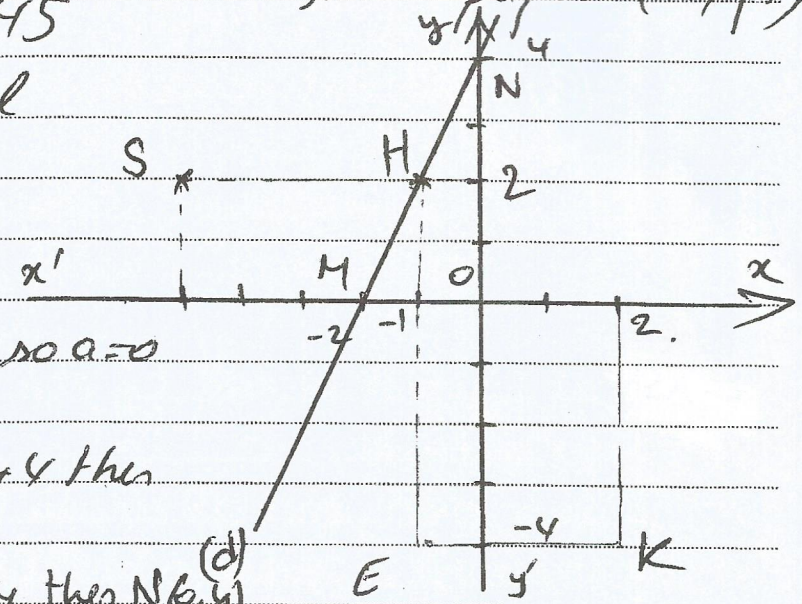
$= \frac{188}{90} = 2.09 \simeq 2$ double sheet papers $(\frac{3}{4}\text{pt})$

b) $y_i = 2x_i$ so new mean $\bar{y} = \frac{y_1 n_1 + y_2 n_2 + y_3 n_3 + y_4 n_4}{N}$

$= \frac{2x_1 n_1 + 2x_2 n_2 + 2x_3 n_3 + 2x_4 n_4}{N} = \frac{2(x_1 n_1 + x_2 n_2 + x_3 n_3 + x_4 n_4)}{N}$

$\bar{y} = 2\bar{x} = 2 \times \frac{188}{90} = \frac{188}{45}$ double sheet papers $(3/4\text{ pt})$

Ex4 1) draw the orthonormal system. (1pt)



2) $y_H = 2x_H + 4$
$2 = 2(a-1) + 4$
$2 - 4 = 2a - 2$ so $2a = 0$ so $a = 0$
$H(-1, 2)$ $(3/4\text{ pt})$

3a) $y_M = 0$ so $0 = 2x_M + 4$ then
$x_M = -2$ so $M(-2, 0)$
$x_N = 0$ so $y_N = 2(0) + 4 = 4$ then $N(0, 4)$

b) $\overrightarrow{MN}$ (1pt)
$x_{\overrightarrow{MN}} = x_N - x_M = 0 + 2 = 2$
$y_{\overrightarrow{MN}} = y_N - y_M = 4 - 0 = 4$
$\overrightarrow{MN}(2, 4)$

$2\overrightarrow{MH}$
$x_{2\overrightarrow{MH}} = 2x(x_H - x_M) = 2(-1+2) = 2$
$y_{2\overrightarrow{MH}} = 2(y_H - y_M) = 2(2-0) = 4$ so $2\overrightarrow{MH}(2, 4)$

so $\overrightarrow{MN} = 2\overrightarrow{MH}$ then H is the midpoint of $[MN]$ $(\frac{3}{4}, \frac{1}{4})$

4)a) $a_{(EH)} = \frac{y_H - y_E}{x_H - x_E} = \frac{2+4}{-1+1} = \frac{6}{0}$ not defined so
(EH) // y'oy so eq of (EH): $x = -1$ since E and H have same abscissa $(\frac{1}{4}, \frac{1}{4}, \frac{1}{2})$.