- Arithmatic Mean

$$X = x_1, x_2, x_3, \ldots, x_n$$

$$\bar{X} = \frac{x_1 + x_2 + x_3 \ldots + x_n}{n}$$

$$X = 1 \quad 2 \quad 2 \quad 3 \quad 5$$

$$\bar{X} = \frac{1 + 2 + 2 + 3 + 5}{5} = \frac{13}{5}$$

- **Weighted Arithmatic Mean**

$$n_1 \times x_1 \;,\; n_2 \times x_2 \;,\; n_3 \times x_3$$

$$\bar{X} = \frac{n_1 \times x_1 + n_2 \times x_2 + n_3 \times x_3}{n_1 + n_2 + n_3}$$

2 (3) 4(2) 5 (5)

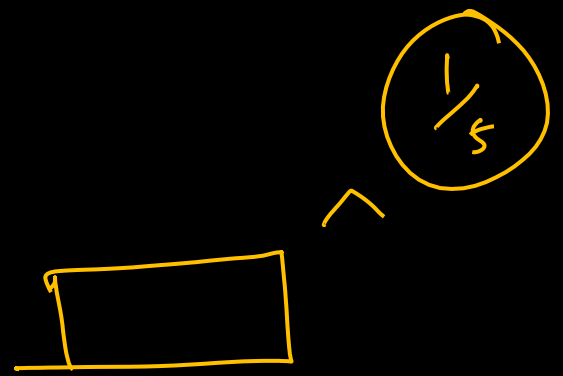
$$\bar{X} = \frac{2 \times 3 + 4 \times 2 + 5 \times 5}{2 + 4 + 5}$$

- Geometric Mean

$$x_1, x_2, x_3, \ldots x_n$$

$$G_1 = \sqrt[n]{x_1 \times x_2 \times x_3 \times \ldots \times x_n}$$

1 1 3 4 6



$$G_1 = \sqrt[5]{1 \times 1 \times 3 \times 4 \times 6}$$

$$= (1 \times 1 \times 3 \times 4 \times 6)^{1/5}$$

- Harmonic Mean

$$x_1, x_2, x_3, \ldots, x_n$$

$$H = \frac{1}{\frac{1}{n}\sum_{j=1}^{n}\frac{1}{x_j}} = \frac{n}{\sum_{j=1}^{n}\frac{1}{x_j}}$$

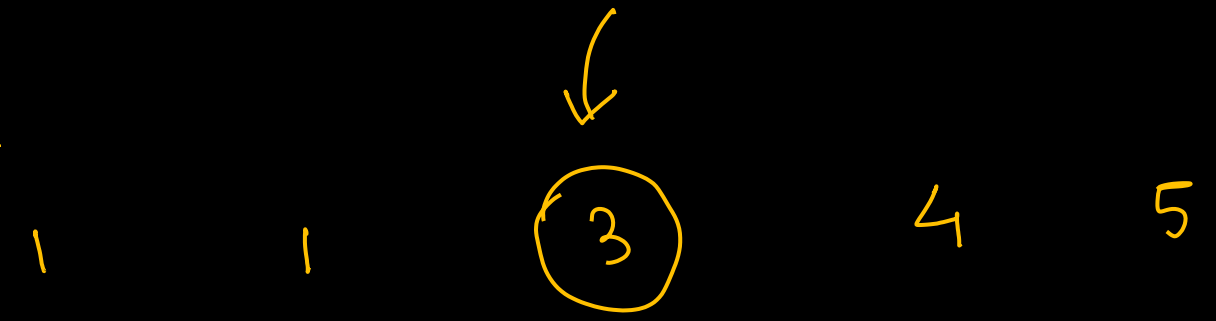
1	1	3	4	6

$$H = \frac{5}{\frac{1}{1}+\frac{1}{1}+\frac{1}{3}+\frac{1}{4}+\frac{1}{6}} = \square$$

$H \leq G \leq \bar{x}$

1 1 1 1

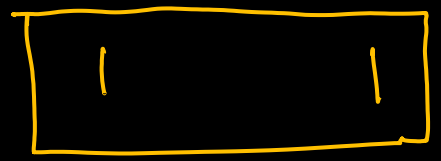
- **Median**



Median

$$\frac{2+4}{2} = 3$$

- Mode



3 4 6

(1)

1

4 3 5

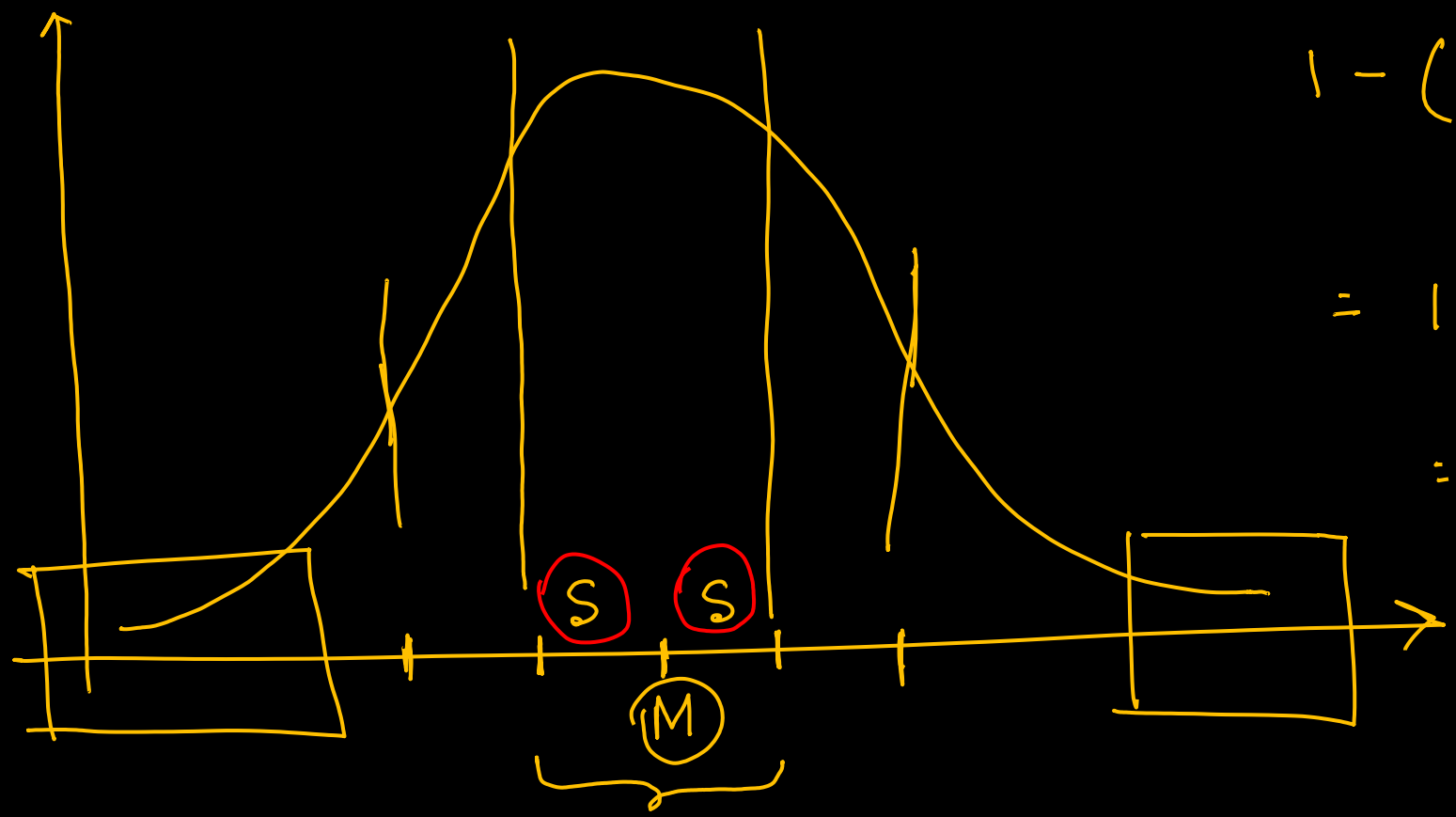
(2)

$$x = 1 \quad 1 \quad 3 \quad 4 \quad 5$$

$$\bar{x} = \frac{1+1+3+4+5}{5} = \frac{13}{5} = 2.6$$

$$SD = \sqrt{\frac{\sum_{j=1}^{n} (x_j - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{(1-2.6)^2 + (1-2.6)^2 + (3-2.6)^2 + (4-2.6)^2 + (5-2.6)^2}{5}}$$



$$1-\left(\frac{1}{k}\right)^2 \times 100\%.$$

$$= 1-\left(\frac{1}{2}\right)^2 \times 100\%.$$

$$= \left(1-\frac{1}{4}\right) \times 100\%.$$

$$= \frac{3}{4} \times 100\%.$$

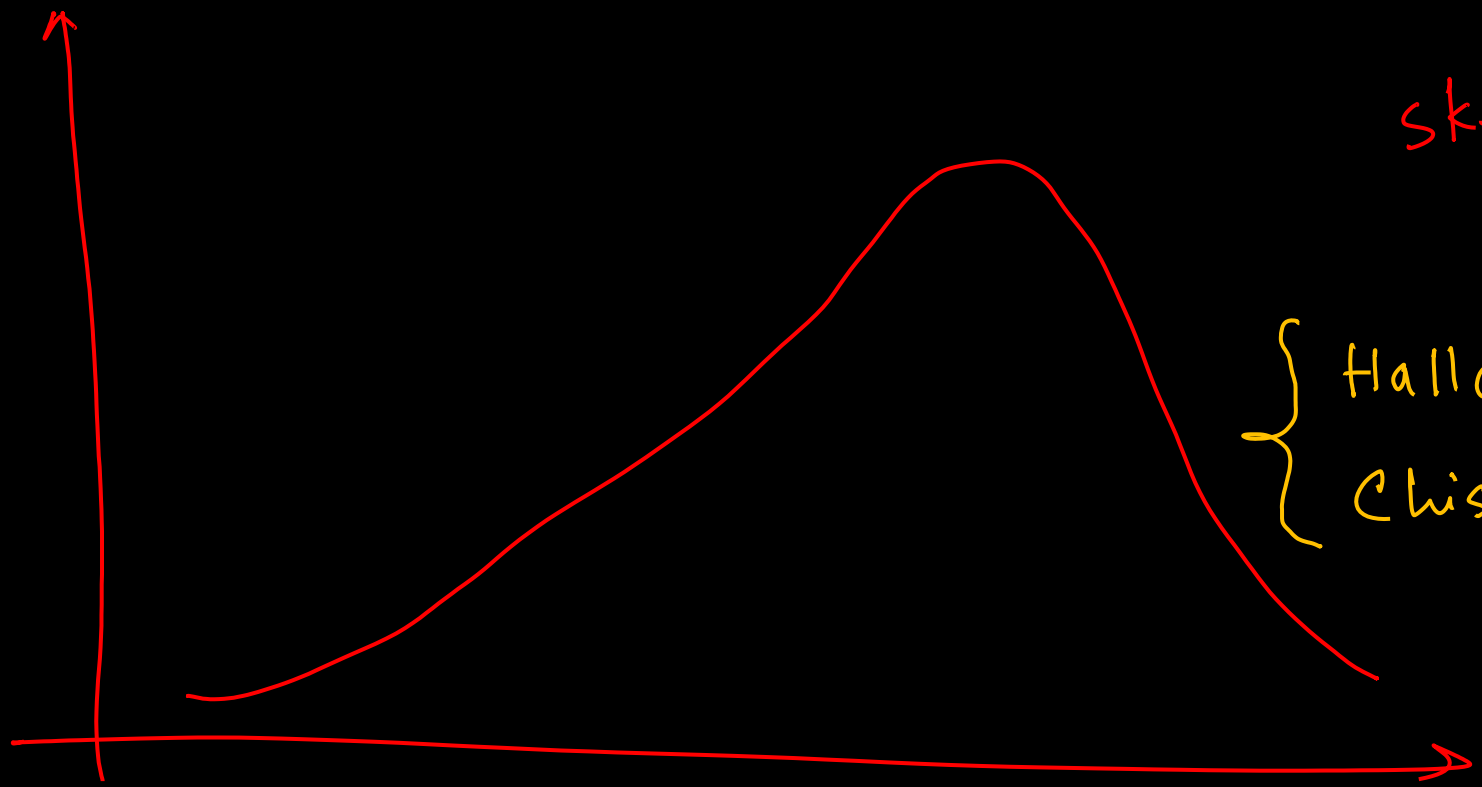
$$= 75\%.$$

$k = 8$

$$\left(1-\left(\frac{1}{8}\right)^2\right) \times 100\%.$$

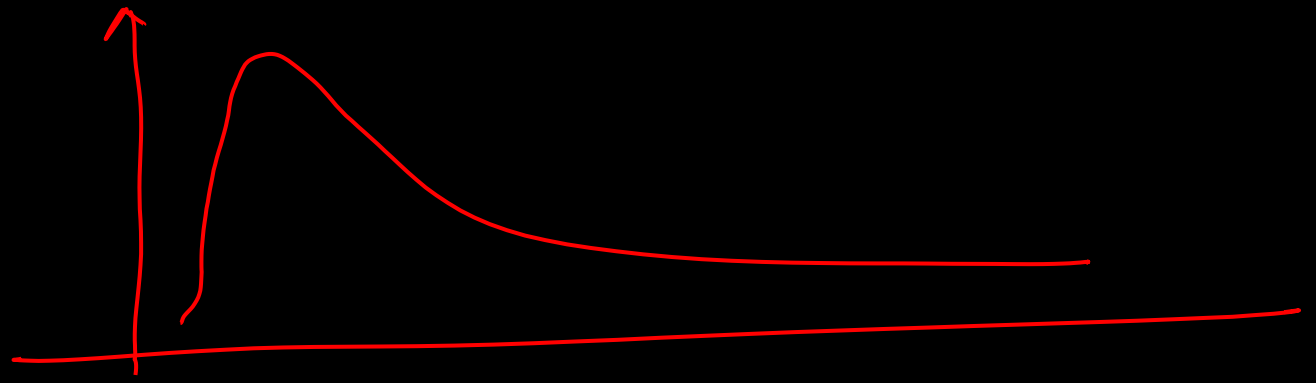
$$\left(1-\left(\frac{1}{4}\right)^2\right) \times 100\%.$$

$$= \left(1-\frac{1}{16}\right) \times 100\%. \qquad \frac{15}{16} \times 100\%$$



skewed Dataset

{ Halloween = 31st Oct
{ Christmas = 25th Dec



31 OCT = 25 DEC

$(31)_8 = (25)_{10}$