



Date _____

Time _____

Growth rate Calculation/Estimation Formula:

8 am to 10 am

$$P_n = P_0(1+G)^n$$

Where:

 P_n = Production/sales of the n^{th} (final) year P_0 = Production/sales of the base (year 0) year G = Growth rate n = Final year minus the base year (number)

11 am to 1.00 pm

However:

$$P_n = P_0(1+G)^n$$

$$\text{Or, } \frac{P_n}{P_0} = (1+G)^n$$

2.00 pm to 4.00 pm

$$\text{Or, } \sqrt[n]{\frac{P_n}{P_0}} = 1+G$$

$$\therefore G = \sqrt[n]{\frac{P_n}{P_0}} - 1$$

Eg. 1961 World Paddy Prod: 215647 x 1000 MT

5.00 pm to 7.00 pm

1970 " " " : 316346 x 1000 MT

$$\therefore P_n = 316346$$

$$P_0 = 215647$$

$$n = 1970 - 1961 = 9$$

(Final year - Base year)

~~(10 yrs - 1 year)~~

(10 yrs - 1 year)



Date

Time

Growth rate analysis: "G"

✓ As compound annual rate

8 am to 10 am

$$G = \sqrt[n]{\frac{P_n}{P_0}} - 1$$

$$= \sqrt[9]{\frac{316346}{215647}} - 1$$

11 am to 1.00 pm

$$= \sqrt[9]{1.466962211} - 1$$

$$= 1.043496488 - 1$$

$$= 0.043496488 = 4.35\%$$

2.00 pm to 4.00 pm

Calculator use :

$$\text{Step 1: } \frac{P_n}{P_0} = A$$

$$\text{Step 2: } A \left[\frac{1}{1} \right] (1 \left[\text{ab/c} \right] 9) = B$$

$$\text{Step 3: } B - 1$$

5.00 pm to 7.00 pm

★ Calculation Process: Simple

$$\frac{P_n}{P_0} = \left[\frac{1}{1} \right] (1 \left[\text{ab/c} \right] 9) = -1 \times 100 = \quad \%$$