

MTH001

Elementary Mathematics

Formula Sheet

1 Chapters, 95 Formulas

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crease in interest rate

$$\text{crease in interest rate} = 9 - 7 = 2 \%$$

Decrease in interest rate

$$\text{Decrease in interest rate} = 7 - 9 = -2 \%$$

Formula for % decrease in Cell F7:

$$\text{Formula for \% decrease in Cell F7:} = F6/F4 * 100$$

Results

$$\text{Cell F6} = -2\%$$

Cell F7

$$\text{Cell F7} = -22.2\%$$

Formula for increase in Cell F16: =F15-F14

$$\text{Formula for \% increase in Cell F17:} = F16/F14 * 100$$

100 * Rs. 62.50

$$100 * \text{Rs. 62.50} = \text{Rs. 6,250}$$

0.02 * Rs. 6,250

$$0.02 * \text{Rs. 6,250} = 125$$

100 shares at Rs. 68 = 6,800.00

$$\text{Commission at 1\%} = - 68.00$$

Net receipts = 6,732.00

$$\text{Total cost} = - 5,277.25$$

Net Gain = 6,732 - 5,277.25 = 1,454.75

$$\text{Dividends } (100 * 10 / 10) = 100.00$$

1: 100

$$\text{Return on investment} = 1,554.75 / 5,277.25$$

Formula for Cost of 100 shares at Rs. 52.25 in Cel

$$\text{Formula for Cost of 100 shares at Rs. 52.25 in Cell B23:} = B21 * B22$$

Formula for Commission at 1% in Cell B24:

$$\text{Formula for Commission at 1\% in Cell B24:} = B23 * 0.01$$

100 shares at Rs. 68 in Cell B29:

$$100 \text{ shares at Rs. 68 in Cell B29: } = B21 * B28$$

Formula for Net Gain in Cell B36: $= B31 - B25$

$$\text{Formula for \% Gain in Cell B37: } = B36 / B35 * 100$$

then

$$I = P \cdot R \cdot T / 100$$

Find simple interest

$$I = P \times T \times R / 100$$

Interest year 1 = $0.1 \times 800 = 80$

$$\text{New } P = 800 + 80 = 880$$

Interest on 880 = $0.1 \times 880 = 88$

$$\text{New } P = 880 + 88 = 968$$

n = Number of periods

$$S = P(1 + r/100)^n$$

S

$$S = P(1 + r/100)^8$$

$$= 750(1 + 12/100)^8$$

$$= \$1000 * [5.53]$$

ula for Accumulated Value S is as follows:

$$S = r ((1+i)^n - 1) / i$$

Accumulation factor for n payments

$$\text{Accumulation factor for } n \text{ payments} = ((1 + i)^n - 1) / i$$

As an example if we deposit 100 rupees and get 110 rupees

.e. 10 % interest on 100 Rs. which is $100 * 10 / 100 = 10$ Rs. so total amount is $100 + 10$

nuity = 2000Rs

$$t = i = 11\% / 2 = 0.055$$

umber of periods

$$\text{umber of periods} = n = 10 \times 2 = 20$$

DISCOUNTED VALUE

$$\text{DISCOUNTED VALUE} = 2,000 \times ((1 - 1 / (1 + 0.055)^{20}) / 0.055)$$

= Payment per period x Discount Factor (DF)

$$\text{Formula for Discount Factor} = (1 - 1 / (1 + i)^n) / i$$

$$= (1 - 1 / (1 + 0.0425)^{18}) / 0.0425 = 12.4059$$

$$\text{Discounted value} = 10000 \times 12.4059 = 124059 \text{ Rs}$$

ext step we

$$(32)(x^4 \cdot 2)(y^3 \cdot 2) / z^3 \cdot 2 = 9 \times 8 y^6 / z^6$$

Divide both sides by numerical coefficient.

$$\text{tep 1: } x = 341.25 + 0.025x$$

$$x(1 - 0.025)$$

$$x(1 - 0.025) = 341.25$$

$$B = 3$$

$$2A = 3 \times 3$$

$$3 : 2 : 1$$

$$\text{Total} = 3 + 2 + 1 = 6$$

Orange juice (Z) = 500 litre

$$\text{Punch} = 1000 + 667 + 500 = 2167 \text{ litre}$$

Here also ratios were used.

$$\text{Mango juice} = B_{45} / B_{47} \cdot D_{47}$$

Apple juice

$$\text{Apple juice} = B_{46} / B_{47} \cdot D_{47}$$

Check:

$$140 \times 30 = 4200$$

$$24 \times 176$$

$$24 \times 176 = 4224$$

First, convert the colon-notation ratios to fractions:

$$2/x = 3/9$$

$$(2x + 1) : 2$$

$$(2x + 1) : 2 = (x + 2) : 5$$

First, convert the colon-notation ratios to fractions:

$$(2x + 1)/2 = (x + 2)/5$$

$$100 \times 15$$

$$100 \times 15 = 1500$$

$$80 \times 5$$

$$80 \times 5 = 400$$

$$70 \times 10$$

$$70 \times 10 = 700$$

$$50 \times 2$$

$$50 \times 2 = 100$$

$$W_i = 300$$

$$W_i X_i = 2700$$

f = frequency of the median class

$n = f$ (the total number of observations)

In this example, n

In this example, $n = 30$ and $n/2 = 15$.

Mean – Mode

$$\text{Mean} - \text{Mode} = 3 (\text{Mean} - \text{Median}) \text{ ---- (2)}$$

30 mph

$$10/30 = 0.3333 \text{ hrs}$$

35 mph

$$10/35 = 0.2857 \text{ hrs}$$

40 mph

$$10/40 = 0.2500 \text{ hrs}$$

45 mph

$$10/45 = 0.2222 \text{ hrs}$$

50 mph

$$10/50 = 0.2000 \text{ hrs}$$

55 mph

$$10/55 = 0.1818 \text{ hrs}$$

30 mph

$$10/30 = 0.333 \text{ hrs}$$

1/30

$$1/30 = 0.0333$$

1/35

$$1/35 = 0.0286$$

1/40

$$1/40 = 0.0250$$

1/45

$$1/45 = 0.0222$$

1/50

$$1/50 = 0.0200$$

1/55

$$1/55 = 0.0182$$

by the symbol nPr , and is given by

$$nPr = n(n-1)(n-2) \dots (n-r+1)$$

7!

$$7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$$

6!

$$6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$$

In the formula of nPr , if we put $r = n$, we obtain:

$$nPn = n(n-1)(n-2) \dots 3 \times 2 \times 1$$

$P(A \cup B)$

$$P(A \cup B) = P(A) + P(B).$$

$$p(M)$$

$$= p(A \text{ or } B) = p(A) + p(B)$$

$$= .5021 + .0120 = .5141$$

$$p(S)$$

$$= p(B \text{ or } D) = p(B) + p(D)$$

$$= .0120 + .0109 = .0229.$$

Therefore $P(A)$

$$\text{Therefore } P(A) = 1/16.$$

$$P(AB)$$

$$P(AB) = P(A) + P(B) - P(AB)$$

Hence: $P(W/A1)$

$$\text{Hence: } P(W/A1) = 5/10$$

Hence: $P(W/A2)$

$$\text{Hence: } P(W/A2) = 4/10$$

Hence: $P(W/A3)$

$$\text{Hence: } P(W/A3) = 3/10$$

$$P(A1 \text{ } W)$$

$$P(A1 \text{ } W) = P(A1)P(W/A1)$$

$$= 45/78 \times 5/10$$

$$= 15/52$$

$$P(A2 \text{ } W) = P(A2)P(W/A2)$$

$$= 30/78 \times 4/10$$

$$P(A3 \text{ } W)$$

$$P(A3 \text{ } W) = P(A3)P(W/A3)$$

$$= 3/78 \times 3/10$$

$$= P(A1W) + P(A2W) + P(A3W)$$

$$= 15/52 + 2/13 + 3/260$$

$$13 - 2 = 11$$

$$8 + 2 = 10$$

$$P(A/B)$$

$$P(A/B) = P(A) \text{ and } P(B/A) = P(B).$$

$$P(A \text{ } B)$$

$$P(A \text{ } B) = P(A) \cdot P(B/A)$$

$$P(A \text{ } B)$$

$$P(A \text{ } B) = 6/36.$$

$$= 3/6 \times 2/6$$

$$= P(\text{male live-born}) + P(\text{male stillborn})$$

$$= 0.5021 + 0.0120$$

$$= 0.0120/0.5141$$

Good Luck!

Keep practicing!