calculatoratoz.com

unitsconverters.com

Important Formulas of AP, GP and HP

Calculators! Examples! Conversions!

Bookmark **calculatoratoz.com**, **unitsconverters.com**

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

Please leave your feedback here...

List of 28 Important Formulas of AP, GP and HP

Important Formulas of AP, GP and HP

Arithmetic Geometric Progression

1) Nth Term of Arithmetic Geometric Progression

Open Calculator

fx $$T_n = (a + ((n - 1) \cdot d)) \cdot \left(r^{n-1}\right)$$

ex $$736 = (3 + ((6 - 1) \cdot 4)) \cdot \left((2)^{6-1}\right)$$

2) Sum of First N Terms of Arithmetic Geometric Progression

Open Calculator

fx $$S_n = \left(\frac{a - \left((a + (n - 1) \cdot d) \cdot r^n\right)}{1 - r}\right) + \left(d \cdot r \cdot \frac{1 - r^{n-1}}{(1 - r)^2}\right)$$

ex $$1221 = \left(\frac{3 - \left((3 + (6 - 1) \cdot 4) \cdot (2)^6\right)}{1 - 2}\right) + \left(4 \cdot 2 \cdot \frac{1 - (2)^{6-1}}{(1 - 2)^2}\right)$$

3) Sum of Infinite Arithmetic Geometric Progression

Open Calculator

fx $$S_{\infty} = \left(\frac{a}{1 - r_{\infty}}\right) + \left(\frac{d \cdot r_{\infty}}{(1 - r_{\infty})^2}\right)$$

ex $$95 = \left(\frac{3}{1 - 0.8}\right) + \left(\frac{4 \cdot 0.8}{(1 - 0.8)^2}\right)$$

Arithmetic Progression

4) Common Difference of Arithmetic Progression

Open Calculator

fx $$d = T_n - T_{n\text{-}1}$$

ex $$10 = 60 - 50$$

5) Common Difference of Arithmetic Progression given Last Term

Open Calculator

fx $$d = \left(\frac{l - a}{n_{Total} - 1}\right)$$

ex $$10.77778 = \left(\frac{100 - 3}{10 - 1}\right)$$

6) First Term of Arithmetic Progression

Open Calculator

fx $$a = T_n - ((n - 1) \cdot d)$$

ex $$40 = 60 - ((6 - 1) \cdot 4)$$

7) Nth Term from End of Arithmetic Progression

Open Calculator

fx $$T_{n(End)} = a + (n_{Total} - n) \cdot d$$

ex $$19 = 3 + (10 - 6) \cdot 4$$

8) Nth Term of Arithmetic Progression

Open Calculator

fx $$T_n = a + (n - 1) \cdot d$$

ex $$23 = 3 + (6 - 1) \cdot 4$$

9) Nth Term of Arithmetic Progression given Pth and Qth Terms

Open Calculator

fx $$T_n = \left(\frac{T_p \cdot (q - 1) - T_q \cdot (p - 1)}{q - p}\right) + (n - 1) \cdot \left(\frac{T_q - T_p}{q - p}\right)$$

ex $$60 = \left(\frac{50 \cdot (8 - 1) - 80 \cdot (5 - 1)}{8 - 5}\right) + (6 - 1) \cdot \left(\frac{80 - 50}{8 - 5}\right)$$

10) Number of Terms of Arithmetic Progression

Open Calculator

fx $$n = \left(\frac{T_n - a}{d}\right) + 1$$

ex $$15.25 = \left(\frac{60 - 3}{4}\right) + 1$$

11) Sum of First N Terms of Arithmetic Progression

Open Calculator

fx $$S_n = \left(\frac{n}{2}\right) \cdot ((2 \cdot a) + ((n - 1) \cdot d))$$

ex $$78 = \left(\frac{6}{2}\right) \cdot ((2 \cdot 3) + ((6 - 1) \cdot 4))$$

12) Sum of Last N Terms of Arithmetic Progression

fx Open Calculator

$$S_{n(End)} = \left(\frac{n}{2}\right) \cdot ((2 \cdot a) + (d \cdot ((2 \cdot n_{Total}) - n - 1)))$$

ex $$174 = \left(\frac{6}{2}\right) \cdot ((2 \cdot 3) + (4 \cdot ((2 \cdot 10) - 6 - 1)))$$

13) Sum of Terms from Pth to Qth Terms of Arithmetic Progression

fx Open Calculator

$$S_{p\text{-}q} = \left(\frac{q - p + 1}{2}\right) \cdot ((2 \cdot a) + ((p + q - 2) \cdot d))$$

ex $$100 = \left(\frac{8 - 5 + 1}{2}\right) \cdot ((2 \cdot 3) + ((5 + 8 - 2) \cdot 4))$$

14) Sum of Total Terms of Arithmetic Progression given Last Term

Open Calculator

fx $$S_{Total} = \left(\frac{n_{Total}}{2}\right) \cdot (a + l)$$

ex $$515 = \left(\frac{10}{2}\right) \cdot (3 + 100)$$

Geometric Progression

15) Common Ratio of Geometric Progression

Open Calculator

fx $$r = \frac{T_n}{T_{n-1}}$$

ex $$1.2 = \frac{60}{50}$$

16) First Term of Geometric Progression

Open Calculator

fx $$a = \frac{T_n}{r^{n-1}}$$

ex $$1.875 = \frac{60}{(2)^{6-1}}$$

17) Nth Term from End of Geometric Progression

Open Calculator

fx $$T_{n(End)} = a \cdot \left(r^{n_{Total}-n}\right)$$

ex $$48 = 3 \cdot \left((2)^{10-6}\right)$$

18) Nth Term of Geometric Progression

Open Calculator

fx $$T_n = a \cdot \left(r^{n-1}\right)$$

ex $$96 = 3 \cdot \left((2)^{6-1}\right)$$

19) Number of Terms of Geometric Progression

Open Calculator

fx $$n = \log\left(r, \frac{T_n}{a}\right) + 1$$

ex $$5.321928 = \log\left(2, \frac{60}{3}\right) + 1$$

20) Sum of First N Terms of Geometric Progression

Open Calculator

fx $$S_n = \frac{a \cdot (r^n - 1)}{r - 1}$$

ex $$189 = \frac{3 \cdot \left((2)^6 - 1\right)}{2 - 1}$$

21) Sum of Infinite Geometric Progression

Open Calculator

fx $$S_\infty = \frac{a}{1 - r_\infty}$$

ex $$15 = \frac{3}{1 - 0.8}$$

22) Sum of Last N Terms of Geometric Progression

Open Calculator

fx $$S_{n(End)} = \frac{1 \cdot \left(\left(\frac{1}{r}\right)^{n} - 1\right)}{\left(\frac{1}{r}\right) - 1}$$

ex $$196.875 = \frac{100 \cdot \left(\left(\frac{1}{2}\right)^{6} - 1\right)}{\left(\frac{1}{2}\right) - 1}$$

23) Sum of Total Terms of Geometric Progression

Open Calculator

fx $$S_{Total} = \frac{a \cdot \left(r^{n_{Total}} - 1\right)}{r - 1}$$

ex $$3069 = \frac{3 \cdot \left((2)^{10} - 1\right)}{2 - 1}$$

Harmonic Progression

24) Common Difference of Harmonic Progression

Open Calculator

fx $$d = \left(\frac{1}{T_{n}} - \frac{1}{T_{n\text{-}1}}\right)$$

ex $$-0.003333 = \left(\frac{1}{60} - \frac{1}{50}\right)$$

25) First Term of Harmonic Progression

Open Calculator

fx $$a = \frac{1}{T_n} - ((n - 1) \cdot d)$$

ex $$-19.983333 = \frac{1}{60} - ((6 - 1) \cdot 4)$$

26) Nth Term of Harmonic Progression

Open Calculator

fx $$T_n = \frac{1}{a + (n - 1) \cdot d}$$

ex $$0.043478 = \frac{1}{3 + (6 - 1) \cdot 4}$$

27) Nth Term of Harmonic Progression from End

Open Calculator

fx $$T_n = \frac{1}{l - (n - 1) \cdot d}$$

ex $$0.0125 = \frac{1}{100 - (6 - 1) \cdot 4}$$

28) Sum of First N Terms of Harmonic Progression

Open Calculator

fx $$S_n = \left(\frac{1}{d}\right) \cdot \ln\left(\frac{2 \cdot a + (2 \cdot n - 1) \cdot d}{2 \cdot a - d}\right)$$

ex $$0.804719 = \left(\frac{1}{4}\right) \cdot \ln\left(\frac{2 \cdot 3 + (2 \cdot 6 - 1) \cdot 4}{2 \cdot 3 - 4}\right)$$

Variables Used

- **a** First Term of Progression
- **d** Common Difference of Progression
- **l** Last Term of Progression
- **n** Index N of Progression
- n_{Total} Number of Total Terms of Progression
- **p** Index P of Progression
- **q** Index Q of Progression
- **r** Common Ratio of Progression
- r_{∞} Common Ratio of Infinite Progression
- S_{∞} Sum of Infinite Progression
- S_n Sum of First N Terms of Progression
- $S_{n(End)}$ Sum of Last N Terms of Progression
- S_{p-q} Sum of Terms from Pth to Qth Terms of Progression
- S_{Total} Sum of Total Terms of Progression
- T_n Nth Term of Progression
- $T_{n(End)}$ Nth Term from End of Progression
- T_{n-1} (N-1)th Term of Progression
- T_p Pth Term of Progression
- T_q Qth Term of Progression

Constants, Functions, Measurements used

- Function: **ln**, ln(Number)
  The natural logarithm, also known as the logarithm to the base e, is the inverse function of the natural exponential function.
- Function: **log**, log(Base, Number)
  Logarithmic function is an inverse function to exponentiation.

Check other formula lists

- **General Series Formulas**
- **Mean Formulas**

Feel free to SHARE this document with your friends!

PDF Available in

English Spanish French German Russian Italian Portuguese Polish Dutch

4/3/2024 | 6:38:28 AM UTC

Please leave your feedback here...