calculatoratoz.com

unitsconverters.com

Van't Hoff Factor Formulas

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 19 Van't Hoff Factor Formulas

Van't Hoff Factor

1) Apparent Molar Mass given Van't Hoff factor

Open Calculator

fx $$M_{obs} = \frac{M_{theoretical}}{i}$$

ex $$49.60317\text{kg/mol} = \frac{50\text{kg/mol}}{1.008}$$

2) Degree of Association given Van't Hoff Factor

Open Calculator

fx $$\beta = \frac{i_{\beta} - 1}{\left(\frac{1}{N_{ions}}\right) - 1}$$

ex $$0.5 = \frac{0.75 - 1}{\left(\frac{1}{2}\right) - 1}$$

3) Degree of Dissociation given Van't Hoff Factor

Open Calculator

fx $$\alpha = \frac{i - 1}{N_{ions} - 1}$$

ex $$0.008 = \frac{1.008 - 1}{2 - 1}$$

4) Experimental Osmotic Pressure given Van't Hoff Factor

Open Calculator

fx $\pi_{exp} = i \cdot \pi_{theoretical}$

ex $15.12atm = 1.008 \cdot 15atm$

5) Formula Mass given Van't Hoff Factor

Open Calculator

fx $M_{theoretical} = i \cdot M_{obs}$

ex $49.99982kg/mol = 1.008 \cdot 49.603kg/mol$

6) Observed Molality given Van't Hoff Factor

Open Calculator

fx $m_{obs} = i \cdot m_{theoretical}$

ex $1.512mol/kg = 1.008 \cdot 1.5mol/kg$

7) Observed Number of Particles given Van't Hoff Factor

Open Calculator

fx $n_{obs} = i \cdot n_{theoretical}$

ex $6.048 = 1.008 \cdot 6$

8) Observed or Experimental Value of Colligative Property given Van't Hoff Factor

Open Calculator

fx $\text{Colligative Property}_{exp} = i \cdot \text{Colligative Property}_{theoretical}$

ex $5.04 = 1.008 \cdot 5$

9) Theoretical Molality given Van't Hoff Factor

Open Calculator

$$m_{theoretical} = \frac{m_{obs}}{i}$$

ex $$1.5\text{mol/kg} = \frac{1.512\text{mol/kg}}{1.008}$$

10) Theoretical Number of Particles given Van't Hoff Factor

Open Calculator

$$n_{theoretical} = \frac{n_{obs}}{i}$$

ex $$6 = \frac{6.048}{1.008}$$

11) Theoretical Osmotic Pressure given Van't Hoff Factor

Open Calculator

$$\pi_{theoretical} = \frac{\pi_{exp}}{i}$$

ex $$15\text{atm} = \frac{15.12\text{atm}}{1.008}$$

12) Theoretical Value of Colligative Property given Van't Hoff Factor

Open Calculator

$$\text{Colligative Property}_{theoretical} = \frac{\text{Colligative Property}_{exp}}{i}$$

ex $$5 = \frac{5.04}{1.008}$$

13) Van't Hoff Factor given Colligative Property

Open Calculator

fx $$i = \frac{\text{Colligative Property}_{exp}}{\text{Colligative Property}_{theoretical}}$$

ex $$1.008 = \frac{5.04}{5}$$

14) Van't Hoff Factor given Degree of Association

Open Calculator

fx $$i_{\beta} = 1 + \left(\left(\left(\frac{1}{N_{ions}}\right) - 1\right) \cdot \beta\right)$$

ex $$0.75 = 1 + \left(\left(\left(\frac{1}{2}\right) - 1\right) \cdot 0.5\right)$$

15) Van't Hoff Factor given Degree of Dissociation

Open Calculator

fx $$i = 1 + ((N_{ions} - 1) \cdot \alpha)$$

ex $$1.008 = 1 + ((2 - 1) \cdot 0.008)$$

16) Van't Hoff Factor given Experimental and Theoretical Osmotic Pressure

Open Calculator

fx $$i = \frac{\pi_{exp}}{\pi_{theoretical}}$$

ex $$1.008 = \frac{15.12atm}{15atm}$$

17) Van't Hoff Factor given Molality

Open Calculator

fx $$i = \frac{m_{obs}}{m_{theoretical}}$$

ex $$1.008 = \frac{1.512 mol/kg}{1.5 mol/kg}$$

18) Van't Hoff Factor given Molar Mass

Open Calculator

fx $$i = \frac{M_{theoretical}}{M_{obs}}$$

ex $$1.008004 = \frac{50 kg/mol}{49.603 kg/mol}$$

19) Van't Hoff Factor given Number of Particles

Open Calculator

fx $$i = \frac{n_{obs}}{n_{theoretical}}$$

ex $$1.008 = \frac{6.048}{6}$$

Variables Used

- **Colligative Property$_{exp}$** Experimental Value of Colligative Property
- **Colligative Property$_{theoretical}$** Theoretical Value of Colligative Property
- **i** Van't Hoff Factor
- **i_{β}** Van't Hoff Factor for Degree of Association
- **m_{obs}** Observed Molality *(Mole per Kilogram)*
- **M_{obs}** Apparent Molar Mass *(Kilogram Per Mole)*
- **$m_{theoretical}$** Theoretical Molality *(Mole per Kilogram)*
- **$M_{theoretical}$** Formula Mass *(Kilogram Per Mole)*
- **N_{ions}** Number of Ions
- **n_{obs}** Observed Number of Particles
- **$n_{theoretical}$** Theoretical Number of Particles
- **α** Degree of Dissociation
- **β** Degree of Association
- **π_{exp}** Experimental Osmotic Pressure *(Standard Atmosphere)*
- **$\pi_{theoretical}$** Theoretical Osmotic Pressure *(Standard Atmosphere)*

Constants, Functions, Measurements used

- Measurement: **Pressure** in Standard Atmosphere (atm)
  Pressure Unit Conversion
- Measurement: **Molar Mass** in Kilogram Per Mole (kg/mol)
  Molar Mass Unit Conversion
- Measurement: **Molality** in Mole per Kilogram (mol/kg)
  Molality Unit Conversion

Check other formula lists

- Clausius-Clapeyron Equation Formulas
- Depression in Freezing Point Formulas
- Elevation in Boiling Point Formulas
- Gibb's Phase Rule Formulas
- Immiscible Liquids Formulas
- Important Formulas of Clausius-Clapeyron Equation
- Osmotic Pressure Formulas
- Relative Lowering of Vapour Pressure Formulas
- Van't Hoff Factor Formulas

Feel free to SHARE this document with your friends!

PDF Available in

English Spanish French German Russian Italian Portuguese Polish Dutch

8/29/2023 | 8:44:30 AM UTC

Please leave your feedback here...