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Relative Strength of Two Acids Formulas

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List of 13 Relative Strength of Two Acids Formulas

Relative Strength of Two Acids

1) Concentration of Acid 1 given Relative Strength, Conc of Acid 2 and Degree of Diss of both Acids

Open Calculator

fx $$C_1 = \frac{R_{strength} \cdot C_2 \cdot \alpha_2}{\alpha_1}$$

ex $$10\text{mol/L} = \frac{2 \cdot 20\text{mol/L} \cdot 0.125}{0.5}$$

2) Concentration of Acid 1 given Relative Strength, Conc of Acid 2 and Diss const of both Acids

Open Calculator

fx $$C'_1 = \frac{\left(R^2_{strength}\right) \cdot C_2 \cdot K_{a2}}{K_{a1}}$$

ex $$0.0024\text{mol/L} = \frac{\left((2)^2\right) \cdot 20\text{mol/L} \cdot 4.5\text{E}\hat{}\text{-}10}{1.5\text{E}\hat{}\text{-}5}$$

3) Concentration of Acid 2 given Relative Strength, Conc of Acid 1 and Degree of Diss of both Acids

Open Calculator

fx $$C_2 = \frac{C_1 \cdot \alpha_1}{R_{strength} \cdot \alpha_2}$$

ex $$20mol/L = \frac{10mol/L \cdot 0.5}{2 \cdot 0.125}$$

4) Concentration of Acid 2 given Relative Strength, Conc of Acid 1 and Diss Const of both Acids

Open Calculator

fx $$C_2 = \frac{C'_1 \cdot K_{a1}}{\left(R_{strength}^2\right) \cdot K_{a2}}$$

ex $$20mol/L = \frac{0.0024mol/L \cdot 1.5E\hat{}\text{-}5}{\left((2)^2\right) \cdot 4.5E\hat{}\text{-}10}$$

5) Concentration of Hydrogen Ion of Acid 1 given Relative Strength and Conc of Hydrogen Ion of Acid 2

Open Calculator

fx $$(H_+1) = R_{strength} \cdot \left(H^+2\right)$$

ex $$5mol/L = 2 \cdot 2.5mol/L$$

6) Concentration of Hydrogen Ion of Acid 2 given Relative Strength and Conc of Hydrogen Ion of Acid 1

Open Calculator

fx $$\left(H^{+}2\right) = \frac{H_{+}1}{R_{strength}}$$

ex $$2.5\text{mol/L} = \frac{5\text{mol/L}}{2}$$

7) Degree of Dissociation 1 given Relative Strength, Conc of both Acid and Degree of Diss 2

Open Calculator

fx $$\alpha_1 = \frac{R_{strength} \cdot C_2 \cdot \alpha_2}{C_1}$$

ex $$0.5 = \frac{2 \cdot 20\text{mol/L} \cdot 0.125}{10\text{mol/L}}$$

8) Degree of Dissociation 2 given Relative Strength, Conc of both Acid and Degree of Diss 1

Open Calculator

fx $$\alpha_2 = \frac{C_1 \cdot \alpha_1}{R_{strength} \cdot C_2}$$

ex $$0.125 = \frac{10\text{mol/L} \cdot 0.5}{2 \cdot 20\text{mol/L}}$$

9) Dissociation Constant 1 given Relative Strength, Conc of both Acid and Diss Const 2

Open Calculator

fx $$K_{a1} = \frac{\left(R_{strength}^2\right) \cdot C_2 \cdot K_{a2}}{C'_1}$$

ex $$1.5E\hat{}\text{-}5 = \frac{\left((2)^2\right) \cdot 20mol/L \cdot 4.5E\hat{}\text{-}10}{0.0024mol/L}$$

10) Dissociation Constant 2 given Relative Strength, Conc of both Acid and Diss Const 1

Open Calculator

fx $$K_{a2} = \frac{C'_1 \cdot K_{a1}}{\left(R_{strength}^2\right) \cdot C_2}$$

ex $$4.5E\hat{}\text{-}10 = \frac{0.0024mol/L \cdot 1.5E\hat{}\text{-}5}{\left((2)^2\right) \cdot 20mol/L}$$

11) Relative Strength of Two Acids given Concentration and Degree of Dissociations of both Acids

Open Calculator

fx $$R_{strength} = \frac{C_1 \cdot \alpha_1}{C_2 \cdot \alpha_2}$$

ex $$2 = \frac{10mol/L \cdot 0.5}{20mol/L \cdot 0.125}$$

12) Relative Strength of Two Acids given Concentration and Dissociation Constant of both Acids

Open Calculator

fx
$$R_{strength} = \sqrt{\frac{C'_1 \cdot K_{a1}}{C_2 \cdot K_{a2}}}$$

ex
$$2 = \sqrt{\frac{0.0024 mol/L \cdot 1.5E\hat{}\text{-}5}{20 mol/L \cdot 4.5E\hat{}\text{-}10}}$$

13) Relative Strength of Two Acids given Concentration of Hydrogen Ion of both Acids

Open Calculator

fx
$$R_{strength} = \frac{H_+1}{H^+2}$$

ex
$$2 = \frac{5 mol/L}{2.5 mol/L}$$

Variables Used

- C_1 Concentration of Acid 1 *(Mole per Liter)*
- C'_1 Conc. of Acid 1 given Dissociation Constant *(Mole per Liter)*
- C_2 Concentration of Acid 2 *(Mole per Liter)*
- H_+1 Hydrogen Ion Furnished by Acid 1 *(Mole per Liter)*
- H^+2 Hydrogen Ion Furnished by Acid 2 *(Mole per Liter)*
- K_{a1} Dissociation Constant of Weak Acid 1
- K_{a2} Dissociation Constant of Weak Acid 2
- $R_{strength}$ Relative Strength of Two Acids
- α_1 Degree of Dissociation 1
- α_2 Degree of Dissociation 2

Constants, Functions, Measurements used

- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Molar Concentration** in Mole per Liter (mol/L)
  Molar Concentration Unit Conversion

Check other formula lists

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