Answers: Introduction to rearranging equations

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Summary

Answers to questions relating to the guide on introduction to rearranging equations.

*These are the answers to* [*Questions: Introduction to rearranging equations*](../questions/qs-introtorearrange.qmd)*.*

**Please attempt the questions before reading these answers!**

## Q1

1.1. $ a=x−2b$

1.2. $ b=\frac{x−a}{2}$

1.3. $ z=−\frac{x}{4}+\frac{y}{2}+1$

1.4. $ x=\frac{3y}{5}−\frac{8z}{5}−\frac{2}{5}$

1.5. $ y=\frac{5x}{3}+\frac{8z}{3}+\frac{2}{3}$

1.6. $ z=−\frac{5x}{8}+\frac{3y}{8}−\frac{1}{4}$

1.7. $ x=\pm \sqrt{4−y^{2}}$

1.8. $ x=\pm \sqrt{4a−\frac{y^{2}}{4}}$

1.9. $ y=\pm \sqrt{16a−4x^{2}}$

1.10. $ x=\pm \sqrt{\left(y+1\right)^{2}+a^{2}}$

1.11. $ a=\sqrt[3]{x^{3}−\left(y+1\right)^{3}}$

1.12. $ x=\sqrt[3]{\left(y+1\right)^{3}−a^{3}}$

1.13. $ d=\frac{a^{3}−x^{4}y^{2}}{2bc}$

1.14. $ a=\sqrt[3]{x^{4}y^{2}−2bcd}$

1.15. $ x=\pm \sqrt[4]{\frac{a^{3}+2bcd}{y^{2}}}$

1.16. $ x=\frac{1}{ly^{2}−45}$

## Q2

$ a=\frac{5x^{3}y^{3}}{4bc^{2}}+\frac{6z}{4bc^{2}w^{4}}$

$ b=\frac{5x^{3}y^{3}}{4ac^{2}}+\frac{6z}{4ac^{2}w^{4}}$

$ c=\pm \sqrt{\frac{5x^{3}y^{3}}{4ab}+\frac{6z}{4abw^{4}}}$

$ y=\sqrt[3]{\frac{4abc^{2}}{5x^{3}}−\frac{6z}{5w^{4}x^{3}}}$

$ z=\frac{4abc^{2}w^{4}−5w^{4}x^{3}y^{3}}{6}$

$ w=\sqrt[4]{\frac{6z}{4abc^{2}−5x^{3}y^{3}}}$

## Version history and licensing

v1.0: initial version created 08/23 by Shanelle Advani, tdhc as part of a University of St Andrews STEP project.

* v1.1: edited 05/24 by tdhc.

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