

# 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](#).

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

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

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

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

1.14.  $a = \sqrt[3]{x^4y^2 - 2bcd}$

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

$$1.16. \quad x = \frac{1}{ly^2 - 45}$$

## Q2

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

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

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

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

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

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

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## 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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