# Rearranging Harder Formulae

Grade 7 topic · Higher tier · Edexcel and AQA

**How to use this pack**
20 questions that get harder as you go. Questions 1–15 (65 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 90 marks.

## Warm-up

**1** Make x the subject of the formula $y = (x + 3)/(x - 2)$. **[4 marks]**

**Answer** _____

**2** Make x the subject of the formula $y = x/(a + x)$. **[4 marks]**

**Answer** _____

**3** Make x the subject of the formula $y = (x - a)/(x + b)$. **[4 marks]**

**Answer** _____

**4** Make x the subject of the formula $y = \sqrt{(x^2 + a)}$. **[4 marks]**

**Answer** _____

**5** Make l the subject of the formula $T = 2\pi\sqrt{(l/g)}$. **[4 marks]**

**Answer** _____

## Core

**6** Make v the subject of the formula $1/f = 1/u + 1/v$. **[4 marks]**

**Answer** _____

**7** Make a the subject of the formula $s = ut + \frac{1}{2}at^2$. **[4 marks]**

**Answer** _____

**8** Make r the subject of the formula $V = (4/3)\pi r^3$. **[4 marks]**

**Answer** _____

**9** Make l the subject of the formula $A = \pi r^2 + \pi rl$. **[4 marks]**

**Answer** _____

**10** Make x the subject of the formula $y = ax/(x + 1)$. **[4 marks]**

**Answer** _____

## Stretch

**11** Make x the subject of the formula $y = (2x + 1)/(x - 3)$. **[5 marks]**

**Answer** _____

**12** Make a the subject of the formula $y^2 = x^2 + ax$. **[5 marks]**

**Answer** _____

**13** Make x the subject of the formula $a = (b + x)/(b - x)$. **[5 marks]**

**Answer** _____

**14** Make x the subject of the formula $y = 3/(x - 1) + 2$. **[5 marks]**

**Answer** _____

**15** Make x the subject of the formula $y = x^2 + 4x$ (give x in terms of y). **[5 marks]**

**Answer** _____

## Challenge

**16** Make x the subject of the formula $ax + b = y(x - 1)$. **[5 marks]**

**Answer** _____

**17** Make x the subject of the formula $y = (x + a)/(x + b)$. **[5 marks]**

**Answer** _____

**18** Make x the subject of the formula $y = \sqrt{((x - 1)/(x + 1))}$. **[5 marks]**

**Answer** _____

**19** Make y the subject of the formula $1/y = 1/x + 1/a$. **[5 marks]**

**Answer** _____

**20** Make x the subject of the formula $y = x/(1 - x)$. **[5 marks]**

**Answer** _____