Rearranging Formulae

GCSE Maths · Higher tier · 21 questions · 51 marks

Name _____ Date _____ Score _____ / 51

Start at Level 1 and climb. Stuck? The worked answers show every step.

Level 1 · Warm-up | Level 2 · Build | Level 3 · Exam-style | Level 4 · Challenge

Level 1 · Warm-up

9 marks

One or two steps: adding, subtracting, multiplying and dividing.

1 Make t the subject of $v = u + at$. [2 marks]

Answer _____

2 Make x the subject of $y = 4x - 3$. [2 marks]

Answer _____

3 Make r the subject of $C = 2\pi r$. [1 mark]

Answer _____

4 Make h the subject of $A = \frac{1}{2}bh$. [2 marks]

Answer _____

5 Make m the subject of $P = 3m + 2n$. [2 marks]

Answer _____

Level 2 · Build 13 marks
Fractions and negatives, and a first look at squares and roots.

6 Make x the subject of $y = \dfrac{x + 5}{2}$. [2 marks]

Answer _____

7 Make v the subject of $s = \frac{1}{2}(u + v)t$. [3 marks]

Answer _____

8 Make x the subject of $y = 7 - 2x$. [2 marks]

Answer _____

9 Make c the subject of $a = b - 3c$. [2 marks]

Answer _____

10 Make r the subject of $A = \pi r^2$. [2 marks]

Answer _____

11 Make x the subject of $y = \sqrt{x + 4}$. [2 marks]

Answer _____

Level 3 · Exam-style 16 marks
Formulae in context, using your rearranged formula, and spotting mistakes.

12 (a) The formula $F = \frac{9C}{5} + 32$ converts a temperature in degrees Celsius, C, to degrees Fahrenheit, F. Make C the subject of the formula. [2 marks]

Answer _____

(b) Use your formula to convert $77°$F to degrees Celsius. [1 mark]

Answer _____

13 (a) The cost, C pounds, of hiring a van for d days is $C = 45 + 30d$. Make d the subject of the formula. [2 marks]

Answer _____

(b) Hal paid £195 to hire a van. For how many days did he hire it? [1 mark]

Answer _____

14 Ravi makes x the subject of $y = 3x + 5$ and writes $x = \frac{y}{3} - 5$. Explain Ravi's mistake, and write down the correct answer. [2 marks]

Answer _____

15 The kinetic energy of a moving object is $E = \frac{1}{2}mv^2$. Make m the subject of the formula. [2 marks]

Answer _____

16 Make u the subject of $v^2 = u^2 + 2as$, where u is positive. [3 marks]

Answer _____

17 Make x the subject of $ax + b = cx + d$. [3 marks]

Answer _____

Level 4 · Challenge 13 marks
Grade 8–9: the subject in two places, fractions with the subject on the bottom, and roots.

18 Make x the subject of $y = \dfrac{x+2}{x-3}$. [4 marks]

Answer _____

19 The time for one swing of a pendulum is $T = 2\pi\sqrt{\frac{l}{g}}$. Make l the subject of the formula. [3 marks]

Answer _____

20 Make x the subject of $\frac{x}{a} + \frac{x}{b} = 1$. [3 marks]

Answer _____

21 Make x the subject of $\sqrt{x^2 + a} = b$, where x is positive. [3 marks]

Answer _____