

GCSE Exam Questions on Formulae

Question 1. (AQA June 2003 Intermediate Paper 2 Calculator OK)

An approximate rule for converting degrees Fahrenheit into degrees Celcius is

$$C = \frac{F - 30}{2}$$

Use this rule to convert 22°F into $^{\circ}\text{C}$.

[2 marks]

Question 2. (AQA June 2003 Intermediate Paper 2 Calculator OK)

Make x the subject of the formula.

$$w = x^2 + y$$

[2 marks]

Question 3. (AQA June 2004 Intermediate Paper 2 Calculator OK)

Make x the subject of the formula.
Simplify your answer as much as possible.

$$3x + 2y = 8y - 3$$

[3 marks]

Question 4. (AQA June 2005 Intermediate Paper 2 Calculator OK)

Use the formula on the right to find the value when $u = -10$, $a = 1.8$ and $t = 3.7$

$$v = u + at$$

[2 marks]

Question 5. (AQA June 2007 Intermediate Paper 2 Calculator OK)

A golf ball is travelling towards a hole.
The distance of the ball from the hole, s feet, after time t seconds, is given by

$$s = t^2 - 6t + 9$$

The ball drops into the hole after 3 seconds.
By working out s when $t = 3$, show that this is correct.



[3 marks]

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Question 6. (AQA November 2003 Intermediate Paper 2 Calculator OK)

You are given that

$$m = \frac{3}{4}, \quad p = \frac{1}{2} \quad \text{and} \quad t = 2$$

(a) Find the value of

$$mp + t$$

[2 marks]

(b) Find the value of

$$\frac{m + p}{t}$$

[2 marks]

Question 7. (AQA November 2003 Intermediate Paper 2 Calculator OK)

Make t the subject of the formula.

$$u = \frac{t}{3} + 5$$

[3 marks]

Question 8. (AQA November 2006 Intermediate Paper 2 Calculator OK)

Rearrange the expression on the right to make p the subject.

$$4(p + r) = 7r + 11$$

[3 marks]

Question 9. (AQA June 2005 Intermediate Paper 1 NO Calculator)

(a) Use the formula

$$a = 5b + 2c$$

to work out a when $b = 3$ and $c = -4$

[2 marks]

(b) Use the formula

$$a = 5b + 2c$$

to work out c when $a = 16$ and $b = 2$

[3 marks]

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Question 10. (AQA June 2005 Intermediate Paper 1 NO Calculator)

Make r the subject of the formula on the right.

$$p = 3 + 2r$$

[2 marks]

Question 11. (AQA June 2007 Intermediate Paper 1 NO Calculator)

Two car firms use different ways of charging for the hire of a car.

(a) Cheap Days uses this formula

$$H = 50d + 120$$

H is the hire charge in pounds.
 d is the number of days the car is hired.

Work out H when $d = 2$

[2 marks]

(b) Cheap Miles uses this formula

$$H = \frac{m + 750}{5}$$

H is the hire charge in pounds.
 m is the number of miles the car travels.

Work out m when $H = 200$

[2 marks]

Question 12. (AQA November 2005 Intermediate Paper 1 NO Calculator)

(a) Use the formula

$$y = 5x + 2$$

to work out the value of y when $x = -3$

[2 marks]

(b) Use the formula

$$y = 5x + 2$$

to work out the value of x when $y = 32$

[2 marks]

Question 13. (AQA November 2005 Intermediate Paper 1 NO Calculator)

Make t the subject of the formula on the right.

$$w = \sqrt{t} - v$$

[2 marks]

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Question 14. (AQA June 2003 Higher Paper 2 Calculator OK)

Make r the subject of the formula on the right.

$$r - 3 = \pi(t - 2r)$$

[4 marks]

Question 15. (AQA June 2005 Higher Paper 2 Calculator OK)

Make x the subject of the formula on the right.

$$a(x - b) = a^2 + bx$$

[4 marks]

Question 16. (AQA June 2006 Higher Paper 2 Calculator OK)

Rearrange the formula on the right to make x the subject.
Simplify your answer as much as possible.

$$y = \frac{xy + 2}{3x - 4}$$

[4 marks]

Question 17. (AQA November 2003 Higher Paper 2 Calculator OK)

Rearrange the formula on the right to make x the subject.
Simplify your answer as much as possible.

$$y = \frac{3x + 4}{x - 3}$$

[4 marks]

Question 18. (AQA November 2004 Higher Paper 2 Calculator OK)

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(a) Make c the subject of this formula

$$E = mc^2$$

[2 marks]

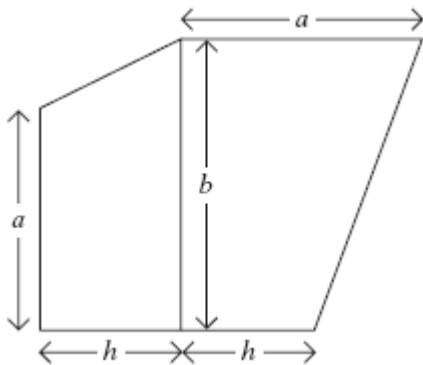
(b) Make m the subject of this formula

$$E = mgh + \frac{1}{2}mv^2$$

[2 marks]

Question 19. (AQA November 2005 Higher Paper 2 Calculator OK)

A shape is made from two trapezia.



The area of this shape is given by

$$A = \frac{h}{2}(a+b) + \frac{b}{2}(a+h)$$

Rearrange the formula to make a the subject.

[4 marks]

Question 20. (AQA November 2006 Higher Paper 2 Calculator OK)

Rearrange the formula on the right to make x the subject.

$$3y + 2 = \frac{x+3}{x}$$

[4 marks]

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Question 21. (AQA November 2007 Higher Paper 1 NO Calculator)

Rearrange the formula on the right to make x the subject.

$$\sqrt{\frac{a}{x+b}} = c$$

[4 marks]