**JRA Tutors**
Free level-check quiz

# GCSE Maths Quiz: Higher

20 questions · about 35 minutes · calculator allowed

**How to use this quiz**

**1.** Try it on your own, without help. You can use a calculator. Each question is worth 1 mark.

**2.** Mark yourself using the answer page at the end. Don't peek until you've finished.

**3.** Send us your score (instructions on the answer page) and we'll tell you what to work on next.

Name: _____ Date: _____ Score: _____ / 20

**1.** Expand and simplify $(x + 4)(x - 3)$

Answer: _____

**2.** Solve $x^2 - 5x - 14 = 0$

Answer: _____

**3.** Write $\sqrt{50} + \sqrt{8}$ in the form $a\sqrt{2}$.

Answer: _____

**4.** Write the recurring decimal 0.777... as a fraction.

Answer: _____

**5.** Make $a$ the subject of $v^2 = u^2 + 2as$

Answer: _____

**6.** A price goes up by 20%, then the new price goes down by 20%. Work out the overall percentage change.

Answer: _____

**7.** Solve the simultaneous equations: $2x + y = 11$ and $x - y = 1$

Answer: _____

**8.** Simplify fully $(x^2 - 9) / (x^2 + 5x + 6)$

Answer: _____

**9.** Work out the value of $27^{2/3}$

Answer: _____

**10.** In a right-angled triangle the side opposite angle $\theta$ is 5 cm and the hypotenuse is 13 cm. Work out $\theta$, to 1 decimal place.

Answer: _____

**11.** A triangle has sides of 7 cm and 9 cm with an angle of 60° between them. Work out the length of the third side. Give your answer to 3 significant figures.

Answer: _____

**12.** The angle at the centre of a circle is 110°. Work out the angle at the circumference, standing on the same arc.

Answer: _____

**13.** A bag has 6 red and 4 blue counters. Two counters are taken without replacement. Work out the probability that both are red.

Answer: _____

**14.** Estimate the mean of this data.

| Class | 0–10 | 10–20 | 20–30 |
|---|---|---|---|
| Frequency | 4 | 6 | 10 |

Answer: _____

**15.** O is the origin. OA = **a** and OB = **b**. M is the midpoint of AB. Write OM in terms of **a** and **b**.

Answer: _____

**16.** Write $x^2 + 6x + 1$ in the form $(x + a)^2 + b$

Answer: _____

**17.** y is directly proportional to $x^2$. When x = 2, y = 20. Work out y when x = 5.

Answer: _____

**18.** $f(x) = 3x - 2$ and $g(x) = x^2$. Work out gf(2).

Answer: _____

**19.** A line has gradient $^2/_3$. Write the gradient of a line perpendicular to it.

Answer: _____

**20.** a = 4.5 and b = 2.3, both correct to 1 decimal place. Work out the upper bound of a + b.

Answer: _____

# Answers and score guide

Mark your quiz with a tick or a cross. Each correct answer is 1 mark.

| | | | |
|---|---|---|---|
| **1** | $x^2 + x - 12$ | **11** | 8.19 cm |
| **2** | x = 7 or x = −2 | **12** | 55° |
| **3** | $7\sqrt{2}$ | **13** | 1/3 |
| **4** | 7/9 | **14** | 18 |
| **5** | $a = (v^2 - u^2) / 2s$ | **15** | $^1/_2(\mathbf{a} + \mathbf{b})$ |
| **6** | 4% decrease | **16** | $(x + 3)^2 - 8$ |
| **7** | x = 4, y = 3 | **17** | 125 |
| **8** | (x − 3)/(x + 2) | **18** | 16 |
| **9** | 9 | **19** | −3/2 |
| **10** | 22.6° | **20** | 6.9 |

## What your score suggests

**0–7** — **Revisit the core**
Several Higher topics need work, and some Foundation skills may too. Try the Foundation quiz alongside this one to find the gaps.

**8–13** — **Developing**
A good base for grades 5 and 6. Focus on algebra manipulation and exam methods.

**14–17** — **Strong**
Secure for grades 6 and 7. Targeted work on harder algebra, geometry and proof will push towards 8 and 9.

**18–20** — **Excellent**
Working towards grades 8 and 9. The focus now is accuracy, speed and unfamiliar problem types.

### Send us your score

Go to **jratutors.co.uk**, tap **Sign up**, choose **GCSE Maths — Higher** and type your score in the message box (for example: "Scored 14/20"). If you remember which questions you missed, add those too. We'll reply within 24 hours with what to work on next.

This quiz was written by JRA Tutors for practice. It is a guide to your level, not an official assessment. A free 15-minute diagnostic call gives a fuller picture.