



Getting ready for A-level maths

What do I need to know from GCSE level?

It's often said that A-level is a big leap from GCSE but actually A-level leads on naturally from the grade 7, 8 and 9 GCSE topics. Problems tend to arise only when people haven't focussed so much on these topics in Year 11.

In Year 12, you'll study a mixture of three modules: Pure, Statistics and Mechanics.

Pure Maths will be covered over a period of two years and include:

- Proof
- Algebra and functions
- Coordinate geometry
- Sequences and series
- Trigonometry
- Exponentials and logarithms
- Differentiation
- Integration
- Vectors

Pure Maths will *extend* what you should already know from GCSE. You'll enjoy it much more if you're comfortable with GCSE maths *before* you embark on A-level!

It is wise to revisit these GCSE topics before September.

- Rearranging formulae
- Reciprocals
- The equation of a line
- Fraction arithmetic
- Simplifying indices
- Evaluating indices
- Simplifying surds
- Multiplying surds
- Pythagoras' theorem
- Expanding expressions
- Factorising expressions
- Linear equations
- Linear simultaneous equations
- Quadratic equations by factorising

Pure Maths also draws on other GCSE algebra topics, such as completing the square and transformations of graphs, but the topics listed above are the basics.

Getting ready for A-level maths

How should I go about preparing myself?

You can re-teach yourself anything that might be a bit wobbly from GCSE. You'll probably have your favourite already but an easy to use one is corbettmaths.com. It has tutorial videos on all GCSE topics, along with questions.

This pack includes a set of revision questions. You can test yourself to see how ready you are. (The answers are at the back of the pack, along with a checklist for summarising the topics on which you need to do more work.)

Do enough so that you feel confident on each topic and you're not leaving a 3-month gap between GCSE and A-level.

Whatever revision you do should involve **doing questions**, not just making notes.

Questions to help you test your readiness for A-level

Rearranging formulae

Make x the subject of the following formulae:

1. $P = 5xy + y$	2. $T = \frac{3(x-y)}{2}$	3. $W = \frac{2y}{3}(1+x)$
4. $C = \frac{y-5z}{2x}$	5. $G = 3x^2 + c$	6. $F = \sqrt{y^2 + x^2}$
7. $Q = x(3a - 2b)$	8. $a + bx = 5 - cx$	9. $r = \sqrt{\frac{ax+b}{cx}}$

Reciprocals

Write the reciprocals of the following:

1. 4	2. -3	3. $\frac{1}{2}$	4. $-\frac{1}{6}$	5. $\frac{2}{3}$
6. $-\frac{5}{7}$	7. $-\frac{5}{3}$	8. $2\frac{1}{2}$	9. $\frac{a}{b}$	10. -0.8

The equation of a line

Find the gradient and the coordinates of the y -intercept for each of these lines:

1. $y = 5x - 8$	2. $y = \frac{1}{2}x + \frac{3}{4}$	3. $2y = 4x - 10$
4. $3x = 5y - 4$	5. $4x - 7y = 11$	6. $9x - 13y - 23 = 0$

Fraction arithmetic

Evaluate the following:

1. $\frac{2}{3} + \frac{1}{5}$	2. $1\frac{1}{4} + 3\frac{4}{5}$	3. $5\frac{2}{3} - 3\frac{3}{7}$	4. $\frac{5}{6} - 1\frac{2}{5}$
5. $\frac{12}{25} \times \frac{15}{16}$	6. $\frac{3}{7} \times 2\frac{3}{5}$	7. $\frac{15}{28} \div \frac{55}{42}$	8. $1\frac{7}{8} \div 1\frac{1}{4}$

Questions to help you test your readiness for A-level

Simplifying indices

Simplify the following:

1. $a^6 \times a^9$	2. $b^3 \div b^7$	3. $(c^3)^4$
4. $\frac{d^3 \times d^5}{d^7}$	5. $\frac{e^8 \times e^{11}}{e \times e^{13}}$	6. $\frac{f^4 \times f^8}{(f^3)^3}$
7. $3g^4 \times 4g^3$	8. $3h^8 \div 9h^3$	9. $(4j^5)^3$

Evaluating indices

Evaluate the following (leaving your answer as a fraction if necessary):

1. 4^0	2. $25^{\frac{1}{2}}$	3. 3^{-2}	4. $16^{-\frac{1}{2}}$
5. $\left(\frac{2}{3}\right)^3$	6. $\left(\frac{2}{3}\right)^{-3}$	7. $27^{\frac{4}{3}}$	8. $\left(\frac{81}{16}\right)^{-\frac{3}{4}}$

Simplifying surds

Simplify the following:

1. $\sqrt{12}$	2. $\sqrt{50}$	3. $\sqrt{32}$	4. $2\sqrt{75}$
5. $\sqrt{50} + \sqrt{32}$	6. $\sqrt{75} - \sqrt{12}$	7. $\frac{\sqrt{50} + \sqrt{32}}{3}$	8. $\frac{4\sqrt{75} - 4\sqrt{12}}{3}$

Multiplying surds

Multiply the following (simplify your answers if possible):

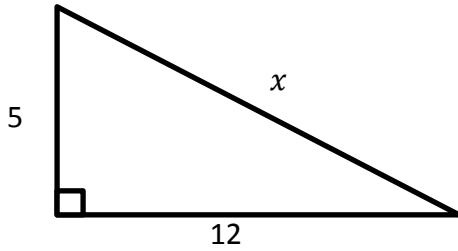
1. $\sqrt{3} \times \sqrt{6}$	2. $(\sqrt{2} + 3)(4 - \sqrt{2})$	3. $(\sqrt{5} - 7)(\sqrt{5} + 7)$
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Questions to help you test your readiness for A-level

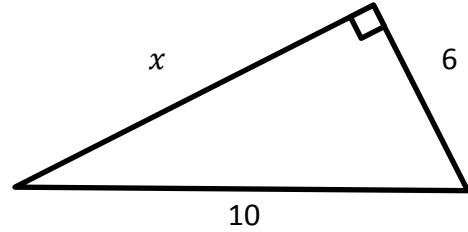
Pythagoras' theorem

Find the length of x (leave your answer as a simplified surd if necessary):

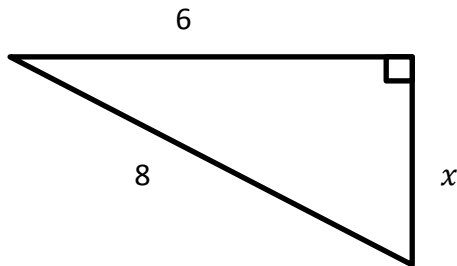
1.



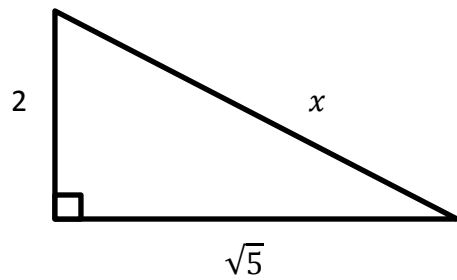
2.



3.



4.



Expanding expressions

Expand and simplify the following:

1. $4(2x - 5) + 3(7 - 3x)$

2. $6(x + 2) - 5(2x - 3)$

3. $x(x + 7) - 3(x + 7)$

4. $(x + 6)(x - 8)$

5. $(x - 3)(x - 5)$

6. $(x + 2)(2x + 3)$

7. $(3x + 4)(2x - 5)$

8. $(x + 7)^2$

9. $(3x + 8)(3x - 8)$

Factorising expressions

Factorise the following:

1. $6x^2 + 15x$

2. $7x^2y + 14xy^2$

3. $3x^4y^2 - 9x^3y^3 + 6xy^5$

4. $x^2 + 6x + 8$

5. $x^2 + 9x + 8$

6. $x^2 - 6x + 8$

7. $x^2 + x - 12$

8. $x^2 - 5x - 24$

9. $3x^2 + 10x + 7$

10. $2x^2 - 11x + 5$

11. $4x^2 - 12x + 9$

12. $x^2 - 25$

Questions to help you test your readiness for A-level

Linear equations

Solve the following:

1. $3a + 14 = 5a + 2$	2. $7b - 8 = 3b + 4$	3. $19 + 2c = 12 - 5c$
4. $16 - 8d = 4 - 5d$	5. $4e - 4 = 5 - 2e$	6. $3(2f + 5) = 4(f + 7)$
7. $\frac{1}{3}(5g - 7) = 6$	8. $\frac{3}{4}(7h + 3) = 5h + 2$	9. $\frac{1}{5}(3m - 4) = \frac{1}{6}(5 + 2m)$

Linear simultaneous equations

Solve the following sets of simultaneous equations:

1. $3a + 4b = 13$ $5a - 4b = 19$	2. $5c - 2d = 19$ $3c - 2d = 13$	3. $3e + 6f = 11$ $4e + 3f = 13$
4. $2g + 5h = 23$ $5g - 3h = 11$	5. $7m + 3n = 26$ $6m + 11n = -3$	6. $6p - 5q = 13$ $7p - 9q = 31$

Quadratic equations by factorising

Solve the following:

1. $x^2 + 6x + 8 = 0$	2. $x^2 + 9x + 8 = 0$	3. $x^2 - 6x = -8$
4. $x^2 + x = 12$	5. $x^2 = 5x + 24$	6. $3x^2 + 10x + 7 = 0$
7. $2x^2 = 11x - 5$	8. $4x^2 + 9 = 12x$	9. $x^2 - 25 = 0$
10. $x^2 + 5x = 0$	11. $4x^2 - 12x = 0$	12. $9x^2 = 6x$

Answers to the questions

Don't look at these if you're still doing the questions for the first time! Mark your work, and be honest with yourself about where you need to improve.

Rearranging formulae

(Note there are alternative methods leading to equivalent but not identical answers)

1. $P = 5xy + y$ $P - y = 5xy$ $\frac{P-y}{5y} = x$	2. $T = \frac{3(x-y)}{2}$ $2T = 3(x-y)$ $2T = 3x - 3y$ $2T + 3y = 3x$ $\frac{2T+3y}{3} = x$	3. $W = \frac{2y}{3}(1+x)$ $3W = 2y(1+x)$ $3W = 2y + 2xy$ $3W - 2y = 2xy$ $\frac{3W-2y}{2y} = x$
4. $C = \frac{y-5z}{2x}$ $Cx = \frac{y-5z}{2}$ $x = \frac{y-5z}{2C}$	5. $G = 3x^2 + c$ $G - c = 3x^2$ $\frac{G-c}{3} = x^2$ $\sqrt{\frac{G-c}{3}} = x$	6. $F = \sqrt{y^2 + x^2}$ $F^2 = y^2 + x^2$ $F^2 - y^2 = x^2$ $\sqrt{F^2 - y^2} = x$
7. $Q = x(3a - 2b)$ $\frac{Q}{3a-2b} = x$	8. $a + bx = 5 - cx$ $a + bx + cx = 5$ $bx + cx = 5 - a$ $x(b + c) = 5 - a$ $x = \frac{5-a}{b+c}$	9. $r = \sqrt{\frac{ax+b}{cx}}$ $r^2 = \frac{ax+b}{cx}$ $cr^2x = ax + b$ $cr^2x - ax = b$ $x(cr^2 - a) = b$ $x = \frac{b}{cr^2-a}$

Reciprocals

1. $\frac{1}{4}$	2. $-\frac{1}{3}$	3. 2	4. -6	5. $\frac{3}{2}$
6. $-\frac{7}{5}$	7. $-\frac{3}{5}$	8. $\frac{2}{5}$	9. $\frac{b}{a}$	10. $-\frac{5}{4}$

The equation of a line

1. $y = 5x - 8$ Gradient = 5 Y-intercept = (0, -8)	2. $y = \frac{1}{2}x + \frac{3}{4}$ Gradient = $\frac{1}{2}$ Y-intercept = $(0, \frac{3}{4})$	3. $y = 2x - 5$ Gradient = 2 Y-intercept = (0, -5)
4. $y = \frac{3}{5}x + \frac{4}{5}$ Gradient = $\frac{3}{5}$ Y-intercept = $(0, \frac{4}{5})$	5. $y = \frac{4}{7}x - \frac{11}{7}$ Gradient = $\frac{4}{7}$ Y-intercept = $(0, -\frac{11}{7})$	6. $y = \frac{9}{13}x - \frac{23}{13}$ Gradient = $\frac{9}{13}$ Y-intercept = $(0, -\frac{23}{13})$

Answers to the questions

Fraction arithmetic

$$1. = \frac{10}{15} + \frac{3}{15} = \frac{13}{15}$$

$$2. = \frac{5}{4} + \frac{19}{5} = \frac{25}{20} + \frac{76}{20} \\ = \frac{101}{20}$$

$$3. = \frac{17}{3} - \frac{24}{7} = \frac{119}{21} - \frac{72}{21} \\ = \frac{47}{21}$$

$$4. = \frac{5}{6} - \frac{7}{5} = \frac{25}{30} - \frac{42}{30} \\ = -\frac{17}{30}$$

$$5. \frac{12}{25} \times \frac{15}{16} = \frac{3}{25} \times \frac{15}{4} \\ = \frac{3}{5} \times \frac{3}{4} = \frac{9}{20}$$

$$6. = \frac{3}{7} \times \frac{13}{5} = \frac{39}{35}$$

$$7. = \frac{15}{28} \times \frac{42}{55} = \frac{3}{28} \times \frac{42}{11} \\ = \frac{3}{2} \times \frac{3}{11} = \frac{9}{22}$$

$$8. = \frac{15}{8} \div \frac{5}{4} = \frac{15}{8} \times \frac{4}{5} \\ = \frac{3}{8} \times \frac{4}{1} = \frac{3}{2} \times \frac{1}{1} = \frac{3}{2}$$

Simplifying indices

$$1. a^{15}$$

$$2. b^{-4}$$

$$3. c^{12}$$

$$4. d$$

$$5. e^5$$

$$6. f^3$$

$$7. 12g^7$$

$$8. \frac{1}{3}i^5$$

$$9. 64j^{15}$$

Evaluating indices

$$1. 1$$

$$2. = \sqrt{25} = 5$$

$$3. = \frac{1}{3^2} = \frac{1}{9}$$

$$4. = \frac{1}{\sqrt{16}} = \frac{1}{4}$$

$$5. \frac{8}{27}$$

$$6. = \left(\frac{3}{2}\right)^3 = \frac{27}{8}$$

$$7. = \left(\sqrt[3]{27}\right)^4 = 3^4 \\ = 81$$

$$8. = \left(\frac{16}{81}\right)^{\frac{3}{4}} = \left(\sqrt[4]{\frac{16}{81}}\right)^3 \\ = \left(\frac{2}{3}\right)^3 = \frac{8}{27}$$

Simplifying surds

$$1. = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$$

$$2. = \sqrt{25} \times \sqrt{2} = 5\sqrt{2}$$

$$3. = \sqrt{16} \times \sqrt{2} = 4\sqrt{2}$$

$$4. = 2 \times \sqrt{25} \times \sqrt{3} \\ = 10\sqrt{3}$$

$$5. = 5\sqrt{2} + 4\sqrt{2} = 9\sqrt{2}$$

$$6. = 5\sqrt{3} - 2\sqrt{3} = 3\sqrt{3}$$

$$7. = \frac{9\sqrt{2}}{3} = 3\sqrt{2}$$

$$8. = \frac{20\sqrt{3} - 8\sqrt{3}}{3} = \frac{12\sqrt{3}}{3} \\ = 4\sqrt{3}$$

Multiplying surds

$$1. = \sqrt{18} = \sqrt{9} \times \sqrt{2} = 3\sqrt{2}$$

$$2. = 4\sqrt{2} - 2 + 12 - 3\sqrt{2} \\ = \sqrt{2} + 10$$

$$3. = 5 + 7\sqrt{5} - 7\sqrt{5} - 49 \\ = -44$$

Answers to the questions

Pythagoras' theorem

Find the length of x (leave your answer as a simplified surd if necessary):

$$\begin{aligned} 1. \quad x^2 &= 5^2 + 12^2 \\ x^2 &= 169 \\ x &= \sqrt{169} \\ x &= 13 \end{aligned}$$

$$\begin{aligned} 2. \quad x^2 &= 10^2 - 6^2 \\ x^2 &= 64 \\ x &= \sqrt{64} \\ x &= 8 \end{aligned}$$

$$\begin{aligned} 3. \quad x^2 &= 8^2 - 6^2 \\ x^2 &= 28 \\ x &= \sqrt{28} \\ x &= \sqrt{4} \times \sqrt{7} \\ x &= 2\sqrt{7} \end{aligned}$$

$$\begin{aligned} 4. \quad x^2 &= 2^2 + (\sqrt{5})^2 \\ x &= 4 + 5 \\ x^2 &= 9 \\ x &= 3 \end{aligned}$$

Expanding expressions

Expand and simplify the following:

$$\begin{aligned} 1. \quad &4(2x - 5) + 3(7 - 3x) \\ &8x - 20 + 21 - 9x \\ &-x + 1 \end{aligned}$$

$$\begin{aligned} 2. \quad &6(x + 2) - 5(2x - 3) \\ &6x + 12 - 10x + 15 \\ &-4x + 27 \end{aligned}$$

$$\begin{aligned} 3. \quad &x(x + 7) - 3(x + 7) \\ &x^2 + 7x - 3x - 21 \\ &x^2 + 4x - 21 \end{aligned}$$

$$\begin{aligned} 4. \quad &(x + 6)(x - 8) \\ &x^2 + 6x - 8x - 48 \\ &x^2 - 2x - 48 \end{aligned}$$

$$\begin{aligned} 5. \quad &(x - 3)(x - 5) \\ &x^2 - 3x - 5x + 15 \\ &x^2 - 8x + 15 \end{aligned}$$

$$\begin{aligned} 6. \quad &(x + 2)(2x + 3) \\ &2x^2 + 4x + 3x + 6 \\ &2x^2 + 7x + 6 \end{aligned}$$

$$\begin{aligned} 7. \quad &(3x + 4)(2x - 5) \\ &6x^2 + 8x - 15x - 20 \\ &6x^2 - 7x - 20 \end{aligned}$$

$$\begin{aligned} 8. \quad &(x + 7)^2 \\ &(x + 7)(x + 7) \\ &x^2 + 7x + 7x + 49 \\ &x^2 + 14x + 49 \end{aligned}$$

$$\begin{aligned} 9. \quad &(3x + 8)(3x - 8) \\ &9x^2 + 24x - 24x - 64 \\ &9x^2 - 64 \end{aligned}$$

Factorising

Factorise the following:

$$\begin{aligned} 1. \quad &6x^2 + 15x \\ &3x(2x + 5) \end{aligned}$$

$$\begin{aligned} 2. \quad &7x^2y + 14xy^2 \\ &7xy(x + 2y) \end{aligned}$$

$$\begin{aligned} 3. \quad &3x^4y^2 - 9x^3y^3 + 6xy^5 \\ &3xy^2(x^3 - 3x^2y + 2y^3) \end{aligned}$$

$$\begin{aligned} 4. \quad &x^2 + 6x + 8 \\ &(x + 4)(x + 2) \end{aligned}$$

$$\begin{aligned} 5. \quad &x^2 + 9x + 8 \\ &(x + 8)(x + 1) \end{aligned}$$

$$\begin{aligned} 6. \quad &x^2 - 6x + 8 \\ &(x - 4)(x - 2) \end{aligned}$$

$$\begin{aligned} 7. \quad &x^2 + x - 12 \\ &(x - 3)(x + 4) \end{aligned}$$

$$\begin{aligned} 8. \quad &x^2 - 5x - 24 \\ &(x - 8)(x + 3) \end{aligned}$$

$$\begin{aligned} 9. \quad &3x^2 + 10x + 7 \\ &(3x + 7)(x + 1) \end{aligned}$$

$$\begin{aligned} 10. \quad &2x^2 - 11x + 5 \\ &(x - 5)(2x - 1) \end{aligned}$$

$$\begin{aligned} 11. \quad &4x^2 - 12x + 9 \\ &(2x - 3)(2x - 3) \end{aligned}$$

$$\begin{aligned} 12. \quad &x^2 - 25 \\ &(x + 5)(x - 5) \end{aligned}$$

Answers to the questions

Solving linear equations

Solve the following:

$$\begin{aligned} 1. \quad 3a + 14 &= 5a + 2 \\ 14 &= 2a + 2 \\ 12 &= 2a \\ a &= 6 \end{aligned}$$

$$\begin{aligned} 2. \quad 7b - 8 &= 3b + 4 \\ 4b - 8 &= 4 \\ 4b &= 12 \\ b &= 3 \end{aligned}$$

$$\begin{aligned} 3. \quad 19 + 2c &= 12 - 5c \\ 19 + 7c &= 12 \\ 7c &= -7 \\ c &= -1 \end{aligned}$$

$$\begin{aligned} 4. \quad 16 - 8d &= 4 - 5d \\ 16 - 3d &= 4 \\ -3d &= -12 \\ d &= 4 \end{aligned}$$

$$\begin{aligned} 5. \quad 4e - 4 &= 5 - 2e \\ 6e - 4 &= 5 \\ 6e &= 9 \\ e &= \frac{9}{6} \end{aligned}$$

$$\begin{aligned} 6. \quad 3(2f + 5) &= 4(f + 7) \\ 6f + 15 &= 4f + 28 \\ 2f + 15 &= 28 \\ 2f &= 13 \\ f &= \frac{13}{2} \end{aligned}$$

$$\begin{aligned} 7. \quad \frac{1}{3}(5g - 7) &= 6 \\ 5g - 7 &= 18 \\ 5g &= 25 \\ g &= 5 \end{aligned}$$

$$\begin{aligned} 8. \quad \frac{3}{4}(7h + 3) &= 5h + 2 \\ 3(7h + 3) &= 4(5h + 2) \\ 21h + 9 &= 20h + 8 \\ h + 9 &= 8 \\ h &= -1 \end{aligned}$$

$$\begin{aligned} 9. \quad \frac{1}{5}(3m - 4) &= \frac{1}{6}(5 + 2m) \\ \frac{6}{5}(3m - 4) &= 5 + 2m \\ 6(3m - 4) &= 5(5 + 2m) \\ 18m - 24 &= 25 + 10m \\ 8m - 24 &= 25 \\ 8m &= 49 \\ m &= \frac{49}{8} \end{aligned}$$

Answers to the questions

Linear simultaneous equations

Solve the following sets of simultaneous equations:

1. $3a + 4b = 13$
 $5a - 4b = 19$

$$8a = 32$$
$$a = 4$$

$$3 \times 4 + 4b = 13$$
$$4b = 1$$
$$b = \frac{1}{4}$$

2. $5c - 2d = 19$
 $3c - 2d = 13$

$$2c = 6$$
$$c = 3$$

$$5 \times 3 - 2d = 19$$
$$-2d = 4$$
$$d = -2$$

3. $3e + 6f = 11$
 $4e + 3f = 13$

$$3e + 6f = 11$$
$$8e + 6f = 26$$

$$5e = 15$$
$$e = 3$$

$$3 \times 3 + 6f = 11$$
$$6f = 2$$
$$f = \frac{1}{3}$$

4. $2g + 5h = 23$
 $5g - 3h = 11$

$$6g + 15h = 69$$
$$25g - 15h = 55$$

$$31g = 124$$
$$g = 4$$

$$2 \times 4 + 5h = 23$$
$$5h = 15$$
$$h = 3$$

5. $7m + 3n = 26$
 $6m + 11n = -3$

$$42m + 18n = 156$$
$$42m + 77n = -21$$

$$59n = -177$$
$$n = -3$$

$$7m + 3 \times (-3) = 26$$
$$7m = 35$$
$$m = 5$$

6. $6p - 5q = 13$
 $7p - 9q = 31$

$$42p - 35q = 91$$
$$42p - 54q = 186$$

$$19q = -95$$
$$q = -5$$

$$6p - 5 \times (-5) = 13$$
$$6p = -12$$
$$p = -2$$

Answers to the questions

Quadratic equations by factorising

Solve the following:

$$\begin{aligned} 1. \quad x^2 + 6x + 8 &= 0 \\ (x + 4)(x + 2) &= 0 \\ x = -4 \quad x &= -2 \end{aligned}$$

$$\begin{aligned} 2. \quad x^2 + 9x + 8 &= 0 \\ (x + 8)(x + 1) &= 0 \\ x = -8 \quad x &= -1 \end{aligned}$$

$$\begin{aligned} 3. \quad x^2 - 6x &= -8 \\ x^2 - 6x + 8 &= 0 \\ (x - 2)(x - 4) &= 0 \\ x = 2 \quad x &= 4 \end{aligned}$$

$$\begin{aligned} 4. \quad x^2 + x &= 12 \\ x^2 + x - 12 &= 0 \\ (x + 4)(x - 3) &= 0 \\ x = -4 \quad x &= 3 \end{aligned}$$

$$\begin{aligned} 5. \quad x^2 &= 5x + 24 \\ x^2 - 5x - 24 &= 0 \\ (x - 8)(x + 3) &= 0 \\ x = 8 \quad x &= -3 \end{aligned}$$

$$\begin{aligned} 6. \quad 3x^2 + 10x + 7 &= 0 \\ (3x + 7)(x + 1) &= 0 \\ x = -\frac{7}{3} \quad x &= -1 \end{aligned}$$

$$\begin{aligned} 7. \quad 2x^2 &= 11x - 5 \\ 2x^2 - 11x + 5 &= 0 \\ (x - 5)(2x - 1) &= 0 \\ x = 5 \quad x &= \frac{1}{2} \end{aligned}$$

$$\begin{aligned} 8. \quad 4x^2 + 9 &= 12x \\ 4x^2 - 12x + 9 &= 0 \\ (2x - 3)(2x - 3) &= 0 \\ x &= \frac{3}{2} \end{aligned}$$

$$\begin{aligned} 9. \quad x^2 - 25 &= 0 \\ (x + 5)(x - 5) &= 0 \\ x = -5 \quad x &= 5 \end{aligned}$$

$$\begin{aligned} 10. \quad x^2 + 5x &= 0 \\ x(x + 5) &= 0 \\ x = 0 \quad x &= -5 \end{aligned}$$

$$\begin{aligned} 11. \quad 4x^2 - 12x &= 0 \\ 4x(x - 3) &= 0 \\ x = 0 \quad x &= 3 \end{aligned}$$

$$\begin{aligned} 12. \quad 9x^2 &= 6x \\ 9x^2 - 6x &= 0 \\ 3x(3x - 2) &= 0 \\ x = 0 \quad x &= \frac{2}{3} \end{aligned}$$

A checklist of what you need to revise

Use your scores on the questions in this pack to fill out this checklist *honestly*. You're aiming to have as many ticks in the right-hand column as possible by the start of term.

	Yikes! I need to put in some serious hours!	I know about this but I still need to revise before September	I feel completely confident and fluent with this topic
Rearranging formulae			
Reciprocals			
The equation of a line			
Fraction arithmetic			
Simplifying indices			
Evaluating indices			
Simplifying surds			
Multiplying surds			
Pythagoras' theorem			
Expanding expressions			
Factorising expressions			
Linear equations			
Linear simultaneous equations			
Quadratic equations by factorisation			