Worthing College

Getting Ready For

A-LEVEL MATHEMATICS

Name	
A-LEVEL MATHEMATICS	**ALGEBRA REQUIRED FOR A-LEVEL**	**Summer 2024**

We are delighted you have chosen to study Mathematics at Worthing College.

Instructions: This pack will help you make the best possible start to studying this subject.

The tasks in this pack:

- should take you **about 4 hours to complete.**
- should be handed into your teacher when teaching starts – *from Monday 9th September* – with your name on it for assessment (cover sheet at end of this document).
- are available on the internet – follow the links in the document.

If you need help: The tasks are designed to get a bit more difficult as you work through them as they are preparing you for studying at a higher level and to become an effective independent learner. You should try to get as far as you can working on your own but if you do need help, please email us at d.collier@worthing.ac.uk, telling us which task you are working on and what help you need. Help is available throughout the summer holidays.

Skills Focus for this Getting Ready for Pack	
The ability to choose the correct method to solve a problem. **Your quality of English communication when a written answer is required.** **Clarity of mathematical communication – how well you show your workings and lay out your work.** **Accuracy of numerical calculations.** **Marking and correcting your work, revising any topics you have forgotten.**	**GCSE subject knowledge, including:** **Algebra** **Surds** **Solving Quadratics** **Solving Simultaneous Equations** **Pythagoras** **Trigonometry**

Textbooks: You should have your own set of Pearson textbooks for the course.

Books you will need for year 1:

Pure Mathematics Year 1/AS – ISBN: 978-1292183398
Statistics & Mechanics Year 1/AS – ISBN: 978-1292232539

Worthing College

Summer work – Introduction to A-Level Mathematics			
Target Grade	**Type of task**	**Task**	**Deadline**
All	Revision Questions	**GCSE Questions** • Answer all of the questions (on lined paper) and bring your work to your first maths lesson. • Answers are provided so use a different coloured pen to mark and correct your work. • There is also a Self-Assessment test which you should mark yourself.	Week beginning 9th September
8 or 9 at GCSE	Worksheet	**Extension Work** **(If you have a high GCSE grade you should certainly have a go at this)** If you are not currently signed up to do Further Maths but would like to try some more challenging algebra, then have a look at this sheet of questions.	Week beginning 9th September

Notes:

Clearly label all pages with your name and arrange them in the correct order. You do not need to print the question sheets although you may choose to do so for your own records. Please do not hand in the question sheets.

If you found these worksheets straightforward, have you considered signing up for Further Maths? It's not too late to sign up (subject to numbers). If you get an 8 or a 9 in your GCSE, ask about Further Maths at enrolment (you can do Further Maths as a 4th subject)

If you found these worksheets really challenging and weren't able to answer the self-assessment test you might want to consider the Maths in Context (Core Maths) course. Please ask for advice at enrolment.

Resources To Help You

For each of the topic areas, there are videos you can watch which will introduce the aspects of the topic and then give you the opportunity to try some questions. Even though these videos are online, you should have a pen and paper nearby for your working.

You can find these videos on Exam Solutions. Just go to the GCSE maths section and search for the topic you are interested in.

These resources are written assuming that you have already encountered all these topics in your GCSE course - they do not start from scratch. This should not be a problem, but if you are finding the level too hard you could go back to a GCSE revision book to help you get up to speed.

Work Experience week

All year 1 students are required to participate in a week-long work placement during their first year of study. You will be expected to locate one week's worth of work placement and submit your work experience form before October half term.

Placement Dates:

L2/L3 students on double /triple qualifications:	1 week course-specific placement, expected placement dates will be confirmed by the course leaders at the beginning of September.
Students with 2 or more single subjects:	1 week placement during the Easter holidays or w/c 23 June 2025

You can find the work experience form HERE
More information and guidance can be found HERE

Getting Ready For A-Level Maths

- **Answer all the questions, on your own paper – do not write on this sheet, there is not enough space.**
- **Do Not use a calculator except for Sections I, J & K**
- **You must show <u>full working</u> and set out your work <u>neatly</u>.**
- **Answers are provided so use a different coloured pen to <u>mark and correct your work</u>.**

Revision and Practice

Section A - Fractions

(1) $\dfrac{3x}{4} \times 5$

(2) $\dfrac{2}{x} + \dfrac{3}{x^2}$

(3) $\dfrac{3x}{2} \div 5$

Section B - Indices

(1) Evaluate the following:

(a) 2^{-6}

(b) $9^{-\left(\frac{1}{2}\right)}$

(c) $81^{-\left(\frac{1}{4}\right)}$

(d) $4^{\frac{5}{2}}$

(e) $32^{\frac{3}{5}}$

(f) $16^{-\left(\frac{7}{4}\right)}$

(2) Write the following expressions in the form ax^n. For expressions (c) - (g) your answer will be in the form $ax^n + bx^n$

(a) $\dfrac{x}{5}$

(b) $\dfrac{\sqrt{x}}{3x^2}$

(c) $\dfrac{2\sqrt{x}+4}{x^2}$

(d) $\dfrac{1-4x}{4x^3}$

(e) $\dfrac{x^2-3}{\sqrt{x}}$

(f) $\dfrac{2+\sqrt{x}}{\sqrt{x}}$

(g) $\dfrac{\sqrt{x}+6}{3x^2}$

(3) Solve the following equations

(a) $x^{-\left(\frac{2}{3}\right)} = 9$

(b) $x^{\frac{2}{5}} = 4$

(c) $x^{\frac{3}{4}} = \dfrac{1}{27}$

Section C - Surds

(1) Simplify into the form $a\sqrt{b}$

(a) $\sqrt{27}$

(b) $\sqrt{45}$

(c) $\sqrt{12}$

(d) $\sqrt{48}$

(e) $\sqrt{75}$

(f) $\dfrac{\sqrt{12}}{2}$

(g) $\dfrac{\sqrt{98}}{7}$

(h) $\dfrac{\sqrt{18}}{\sqrt{2}}$

(i) $\dfrac{\sqrt{27}}{3}$

(j) $\sqrt{12} + 3\sqrt{75}$

(k) $\sqrt{200} + \sqrt{18} - 2\sqrt{72}$

(l) $\sqrt{20} + 2\sqrt{45} - 3\sqrt{80}$

Section D - Factorising Quadratics

Factorise the following: (Hint - difference of two squares for questions 1-4)

(1) $x^2 - 1$ (2) $49 - x^2$ (3) $x^2 - 16$ (4) $36 - 25x^2$

(5) $x^2 - 2x - 15$ (6) $x^2 - 5x - 6$ (7) $2x^2 + 6x$ (8) $2x^2 + 5x + 2$

(9) $2x^2 + 7x + 6$ (10) $2x^2 + 9x - 5$

Section E - Completing the Square

Write the following in completed square form $(x + p)^2 + q$

(1) $x^2 + 8x + 7$ (2) $x^2 - 2x - 15$ (3) $x^2 - 3x$ (4) $x^2 + 6x + 10$
(5) $x^2 - 10x + 9$ (6) $x^2 + 12x + 100$

Section F - Solving Quadratic Equations

Solve these equations by factorising:

(1) $x^2 + 11x + 28 = 0$ (2) $x^2 + 3x = 0$ (3) $2x^2 + 3x - 14 = 0$

Solve the following quadratic equations using the quadratic formula and leave your answers in the form $a \pm b\sqrt{c}$

(4) $2x^2 + 4x + 1 = 0$ (5) $x^2 - 7x + 9 = 0$

Solve the following quadratic equations by completing the square:

(6) $x^2 + 2x - 6 = 0$ (7) $x^2 + 6x - 5 = 0$

Section G - Simultaneous Equations

(1) Solve these simultaneous equations. Decide whether you should add or subtract your equations.

(a) $2x + 6y = 68$ $2x + 4y = 46$

(b) $7w - 3z = 58$ $5w + 3z = 62$

(c) $8x + 6y = 36$ $8x + 10y = 44$

(2) For these, one or both equations may need to be multiplied first

(a) $5x + 2y = 20$ $2x + 4y = 24$
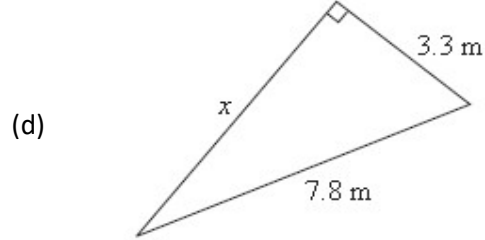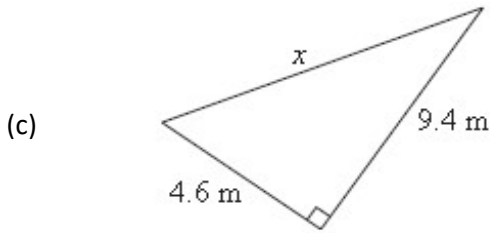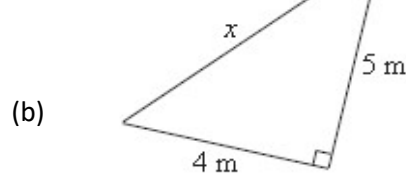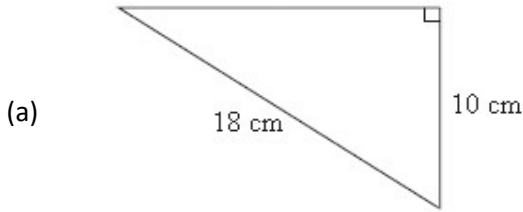
(b) $3x + 2y = 26$ $4x - y = 20$

(c) $2x + 9y = 69$ $x + 3y = 24$

Section H – Pythagoras' Theorem

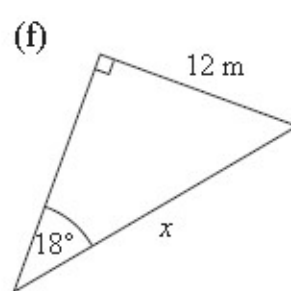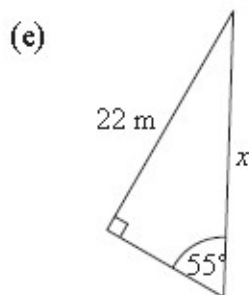These should be straightforward. Do some revision if you have forgotten how to use Pythagoras' Theorem

Find the length of the side marked x. Give your answers as a sim

(a)

x

18 cm

10 cm

(b)

x

5 m

4 m

(c)

x

9.4 m

4.6 m

(d)

3.3 m

x

7.8 m

Section I - Using Sin, Cos, Tan to find missing lengths (SOHCAHTOA) – CALCULATOR ALLOWED

These should be straightforward. Do some revision if you have forgotten how to do these. We will assume you know how to answer questions like this. Give your answers to 1 decimal place.

Find the length of the side marked x in each triangle.

(a)

9 cm

x

48°

(b)

x

42°

10 cm

(c)

18 cm

70°

x

(d)

x

45°

7 m

(e)

22 m

x

55°

(f)

12 m

18°

x
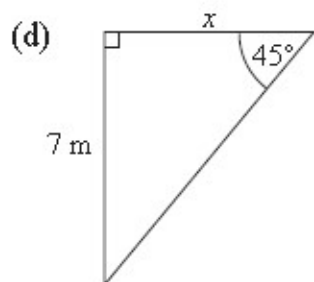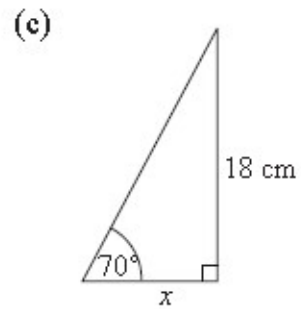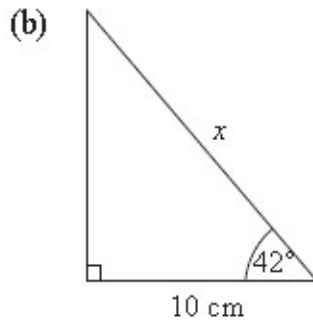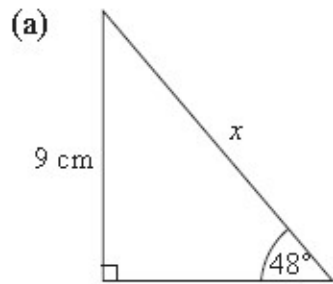
Section J - Using Sin, Cos, Tan to find missing angles (SOHCAHTOA) – CALCULATOR ALLOWED

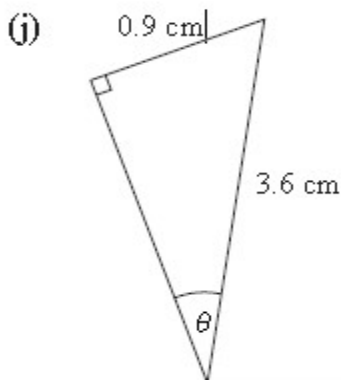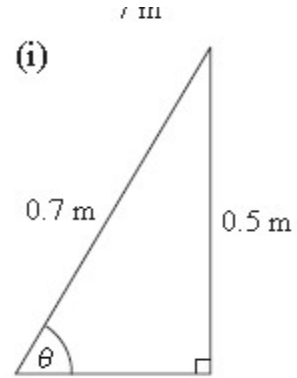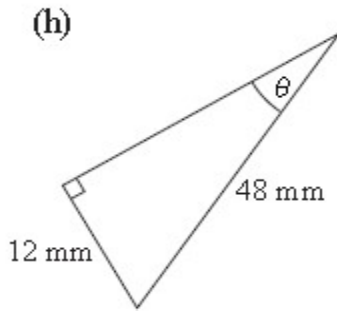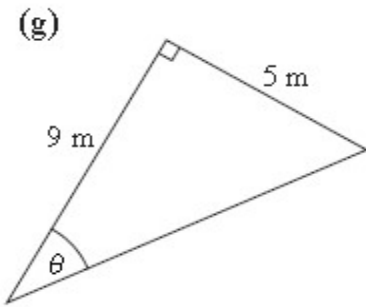These should be straightforward. Do some revision if you have forgotten how to do these. We will assume you know how to answer questions like this. Give your answers to 1 decimal place.

(g)

5 m

9 m

θ

(h)

θ

48 mm

12 mm

(i)

0.7 m

0.5 m

θ

(j)

0.9 cm

3.6 cm

θ

(k)

12.2 m

θ

8.7 m

(l)

16.5 m

θ

15.1 m
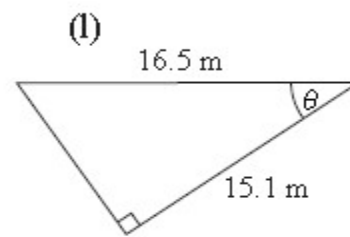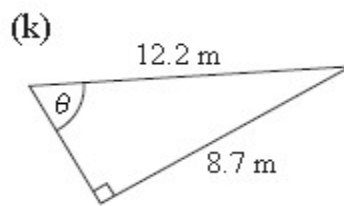
Section K - These questions involve use of the Sine Rule and the Cosine Rule. – CALCULATOR ALLOWED

These are more difficult so you may need to do some revision. Make sure you show all your working.

Fill in the gaps in the table below, using Sine Rule and Cosine Rule (show your working).

	Side lengths			Angles		
	a	b	c	A	B	C
1	2.9cm	6.1cm			40°	
2	36cm		21cm	29.5°		
3	8.1cm		4.7cm		138°	

B   a   C

c

b

A
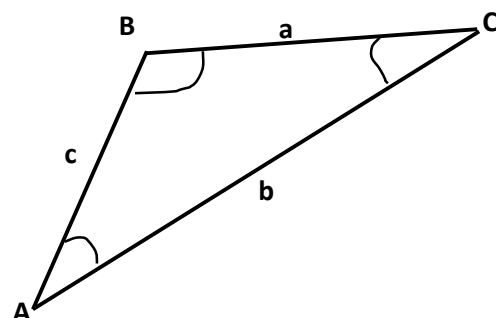
Section L – Problem Solving

(1)
The diagram shows a quadrilateral ABCD. The perimeter of the quadrilateral is 80cm.

AB is the same length as BC. Find the length of CD.

B

$6y - 10$

$4y + 1$

C

A

D

$5y + 1$

(2) A spinner can land on either a 10, 20 or 30

The table shows the probability that it lands on each value.

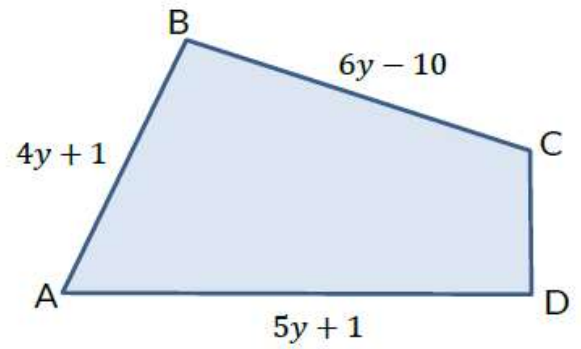| Outcome	10	20	30
Probability	$2x + 0.1$	$3x - 0.3$	x

The spinner is spun twice. Find the probability that the total scored from the two spins is exactly 40.

(3) Here is some data in a frequency table.

Find the mean of this data.

x	$frequency$
$\sqrt{20}$	6
$\sqrt{45}$	3
$\sqrt{80}$	1

(4) A 7 metre ladder rests against a wall. The ladder reaches 5.5 metres up the wall.

The ladder is then moved so that it now reaches 1 metre less than last time.

How much further is the base of the ladder now from the wall?

(5) Here are three number cards.

$\sqrt{20}$ $\sqrt{45}$ $\sqrt{80}$
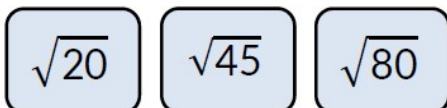
Find the mean of these numbers.

Another card is added.

$\sqrt{a}$
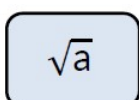
The mean of all four cards is double the mean of the three cards. Find the value of a.

If you have found the work so far straightforward, then try these three questions. They are more challenging questions, so don't worry if you can't answer them.

(1) Simplify:

$$16^{\frac{3}{4}}\left(\frac{4x^2y^3z^2}{12x^3y}\right)^{-2}\frac{\left(3x^{\frac{3}{4}}y^{\frac{2}{3}}\right)^{12}}{(9x^{-2}yz)^4}$$

(2) Express the following in the form $\frac{a}{b}(c+d\sqrt{e})$

$$\frac{4}{2\sqrt{5}-\sqrt{3}}\times\frac{\sqrt{180}-\sqrt{27}}{\left(\sqrt{2}-\sqrt{5}\right)^2}\times\sqrt{1\frac{9}{16}}$$

(3) Given the area of PQT is 20cm², find the obtuse angle QTS.
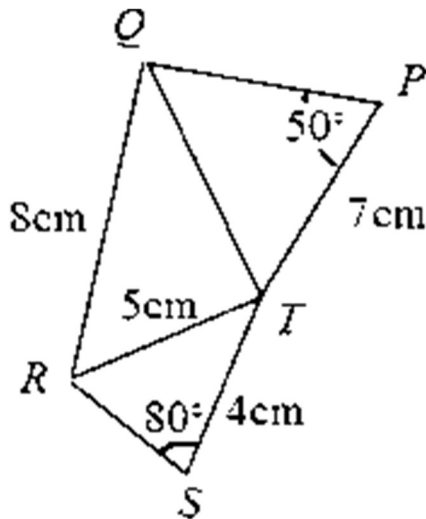
- **Please mark all the above work in a different colour; the answers are later in this document.**
- **Please revise any topics that are causing you difficulty.**
- **Next complete the self- assessment test below.**
- **Mark it when you have finished, the answers are at the end of this document.**

Instructions
- Answer the questions under exam conditions. No calculator allowed, except Q5 & Q6
- Mark your work, in a different coloured pen, using the answers provided.
- If you get a question wrong, you should do it again to show you understand where you went wrong.
- Write your mark (out of 40) clearly on the top of your work
- Do your work on your own A4 paper; do not hand in this printed sheet.
- Clearly label your work with your name

1 (a) Write $\frac{3x}{2} \div 5$ as a single fraction

  (b) Write $\frac{2}{x} + \frac{3}{x^2}$ as a single fraction

2 (a) Evaluate $16^{-\left(\frac{7}{4}\right)}$ (b)   Evaluate $4^{\frac{5}{2}}$

3 (a) Write $\frac{2+\sqrt{x}}{\sqrt{x}}$ in the form $ax^n + bx^m$

  (b) Solve the equation $x^{\frac{3}{4}} = \frac{1}{27}$

4 (a) Simplify $\sqrt{48}$ (b)   Simplify $\frac{\sqrt{18}}{\sqrt{2}}$ (c) Simplify $\sqrt{20} + 2\sqrt{45} - 3\sqrt{80}$

5. Calculate the size of the angle BAC;– **CALCULATOR ALLOWED**

B

5m   6m

A 8m C Not to scale
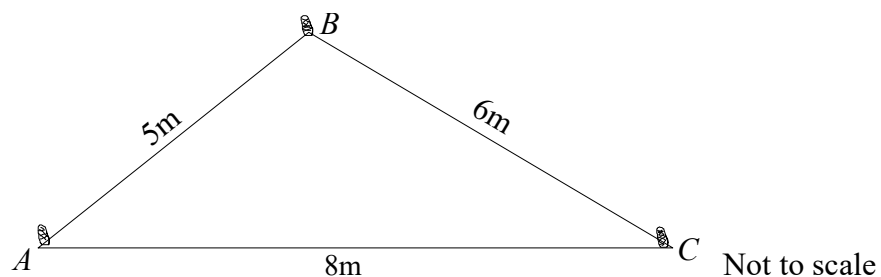
6.   In triangle *ABC*, *AC* = 7.6 cm, angle *BAC* = 35°, angle *ACB* = 65°.
The length of *AB* is *x* cm. The size of angle *ABC* is θ°.

Calculate the value of *x*. – **CALCULATOR ALLOWED**
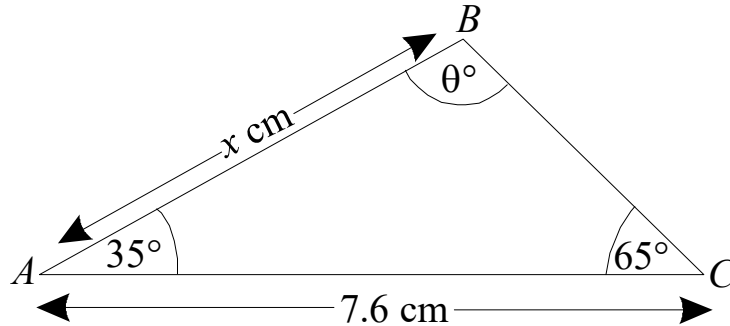
7.   Solve the simultaneous equations :-

a) $2x + 3y = 5$
$3x - 2y = 14$

b) $-7 = x - y$
$x^2 + y^2 = 25$

8   Factorise the quadratic $y = 2x^2 - 8$ using the difference of two squares

9   Factorise the quadratic $y = 6x^2 - 3x$

10   Factorise the quadratic $y = 2x^2 - 11x + 12$

11   Write the quadratic $y = x^2 - 6x - 16$ in completed square form.

12   Solve the equation $2x^2 + 3x - 14 = 0$ by factorising.

13   Solve the equation $x^2 - 7x + 9 = 0$ by using the quadratic formula, leaving the answer(s) in surd form.

14   Solve the equation $x^2 + 2x - 6 = 0$ by rearranging the completed square, leaving the answer(s) in surd form.

Answers – Revision and Practice

Section A - Fractions

(1) $\dfrac{15x}{4}$

(2) $\dfrac{2x+3}{x^2}$

(3) $\dfrac{3x}{10}$

Section B – Indices

(1)

(a) $^1/_{64}$

(b) $^1/_3$

(c) $^1/_3$

(d) 32

(e) 8

(f) $^1/_{128}$

(2)

(a) $\dfrac{1}{5}x$

(b) $\dfrac{1}{3}x^{-\frac{3}{2}}$

(c) $2x^{-\frac{3}{2}}+4x^{-2}$

(d) $\dfrac{1}{4}x^{-3}-x^{-2}$

(e) $x^{\frac{3}{2}}-3x^{-\frac{1}{2}}$

(f) $2x^{-\frac{1}{2}}+1$

(g) $\dfrac{1}{3}x^{-\frac{3}{2}}+2x^{-2}$

(3)

(a) $\pm\,^1/_{27}$

(b) $\pm\,32$

(c) $^1/_{81}$

Section C - Surds

(a) $3\sqrt{3}$ (b) $3\sqrt{5}$ (c) $2\sqrt{3}$ (d) $4\sqrt{3}$ (e) $5\sqrt{3}$ (f) $\sqrt{3}$

(g) $\sqrt{2}$ (h) 3   (i) $\sqrt{3}$ (j) $17\sqrt{3}$ (k) $\sqrt{2}$ (l) $-4\sqrt{5}$

Section D - Factorising Quadratics

(1) $(x-1)(x+1)$

(2) $(7-x)(7+x)$

(3) $(x-4)(x+4)$

(4) $(6-5x)(6+5x)$

(5) $(x+3)(x-5)$

(6) $(x-6)(x+1)$

(7) $2x\,(x+3)$

(8) $(2x+1)(x+2)$

(9) $(2x+3)(x+2)$

(10) $(2x-1)(x+5)$

Section E - Completing the Square

(1) $(x+4)^2 - 9$

(2) $(x-1)^2 - 16$

(3) $(x-1.5)^2 - 2.25$

(4) $(x+3)^2 + 1$

(5) $(x-5)^2 - 16$

(6) $(x+6)^2 + 64$

Section F - Solving Quadratic Equations

(1) $x = -7$ or -4

(2) $x = 0$ or -3

(3) $x = -\,^7/_2$ or 2

(4) $x = -1\pm\dfrac{1}{2}\sqrt{2}$

(5) $x = \dfrac{7}{2}\pm\dfrac{1}{2}\sqrt{13}$

(6) $x = -1\pm\sqrt{7}$

(7) $x = -3\pm\sqrt{14}$

Section G - Simultaneous Equations Answers

(1)

(a)   x=1, y=11 (subtract)   (b)   w=10, z=4 (add)   (c)   x=3, y=2 (subtract)

(2)

(a)   x=2, y=5 (double second equation then subtract)

(b)   x=6, y=4 (double second equation then subtract)

(c)   x=3, y=7 (multiply second equation by 3 then subtract)

Section H - Pythagoras

(a) $4\sqrt{14}$ cm   (b) $\sqrt{41}$ m   (c) $\frac{37}{5}\sqrt{2}$ m   (d) $\frac{3}{10}\sqrt{555}$

Section I - Basic Trig - Missing Lengths

(a)12.1cm   (b)13.5cm   (c)6.6cm   (d)7m

(e)26.9m   (f)38.8m

Section J - Basic Trig - Missing Angles

(a)29.1°   (b)14.5°   (c)45.6°   (d)14.5°

(e)45.5°   (f)23.8°

Section K – Sine & Cosine Rules

	Side lengths			Angles		
	a	b	c	A	B	C
1	2.9cm	6.1cm	8.0cm	17.8°	40°	122.2°
2	36cm	52.8cm	21cm	29.5°	133.8°	16.7°
3	8.1cm	12.0cm	4.7cm	26.8°	138°	15.2°

Section L – Problem Solving

(1) 5.5cm   (2) P(exactly 40) = 0.29   (3) $\frac{5\sqrt{5}}{2}$
(4) 1.03m   (5) 1125

Section M – Extension

Question 1 Worked Solutions

Question 2 Worked Solutions

Question 3 Worked Solutions

Answers – Self Assessment Test

For each part, give yourself 2 marks for a perfect answer (including working!), 1 mark for correct method but made a mistake and 0 marks for doing it totally wrong! The total test is out of 40 and anything below 24/40 is worrying and means you must go back to the exercises and try again to master the techniques.

1 a) $\frac{3x}{2} \div 5 = \frac{3x}{2} \times \frac{1}{5} = \frac{3x}{10}$

b) $\frac{2}{x} + \frac{3}{x^2} = \frac{2x}{x^2} + \frac{3}{x^2} = \frac{2x+3}{x^2}$

2 a) $16^{-\frac{7}{4}} = \frac{1}{16^{\frac{7}{4}}} = \frac{1}{\left(16^{\frac{1}{4}}\right)^7} = \frac{1}{2^7} = \frac{1}{128}$

b) $4^{\frac{5}{2}} = \left(4^{\frac{1}{2}}\right)^5 = 2^5 = 32$

3 a) $\frac{2+\sqrt{x}}{\sqrt{x}} = \frac{2}{\sqrt{x}} + \frac{\sqrt{x}}{\sqrt{x}} = 2x^{-\frac{1}{2}} + 1$

b) $x^{\frac{3}{4}} = \frac{1}{27}$

$\left(\sqrt[4]{x}\right)^3 = \frac{1}{27}$

$\sqrt[4]{x} = \frac{1}{3}$

$x = \frac{1}{81}$

4 a) $\sqrt{48} = \sqrt{16 \times 3} = \sqrt{16} \times \sqrt{3} = 4\sqrt{3}$

b) $\frac{\sqrt{18}}{\sqrt{2}} = \sqrt{\frac{18}{2}} = \sqrt{9} = 3$

c) $\sqrt{20} + 2\sqrt{45} - 3\sqrt{80} = \sqrt{4}\sqrt{5} + 2\sqrt{9}\sqrt{5} - 3\sqrt{16}\sqrt{5} = 2\sqrt{5} + 6\sqrt{5} - 12\sqrt{5} = -4\sqrt{5}$

5 48.5 degrees

6 6.99 to 2dp

7 a)   x= 4, y= -1

b): Solve the simultaneous equations:
(1) -7 = x - y
(2) $x^2 + y^2 = 25$

Rearrange (1) to make y the subject of equation:	y = x + 7
Substitute this into equation (2):	$x^2 + (x + 7)(x + 7) = 25$
Expand the brackets:	$x^2 + x^2 + 14x + 49 = 25$
Simplify: $2x^2 + 14x + 24 = 0$ divide equation by 2:	$x^2 + 7x + 12 = 0$
Factorise:	(x + 3)(x + 4) = 0
Solve: x + 3 = 0 and x + 4 = 0 so	x = -3 or x = -4
Substitute in (2):	when x = -3, y = 4 and when x = -4, y = 3

8 $2x^2 - 8 = 2(x^2 - 4) = 2(x + 2)(x - 2)$

9 $6x^2 - 3x = 3x(2x - 1)$

10 $2x^2 - 11x + 12 = (2x - 3)(x - 4)$

11 $x^2 - 6x - 16 = (x - 3)^2 - (-3)^2 - 16$

$$= (x - 3)^2 - 25$$

12 $2x^2 + 3x - 14 = 0$

$(2x + 7)(x - 2) = 0$

$2x + 7 = 0$ or $x - 2 = 0$

$x = -3.5$ or $x = 2$

13 $x = \dfrac{-(-7) \pm \sqrt{(-7)^2 - 4(1)}}{2(1)} = \dfrac{7 \pm \sqrt{13}}{2} = \dfrac{7}{2} \pm \dfrac{\sqrt{13}}{2}$

14 $x^2 + 2x - 6 = 0$

$(x + 1)^2 - (-1)^2 - 6 = 0$

$(x + 1)^2 = 7$

$x + 1 = \pm \sqrt{7}$

$x = -1 \pm \sqrt{7}$

Getting Ready For AS Further Maths (Extension Task for AS Maths)

Task 0.1 GCSE Algebra Practice

Q1.

(a)   Expand and simplify $(x + 4)^2$

(b)   Hence or otherwise, show that $(x + 4)^2 - 4(x + 4) \equiv x\,(x + 4)$

Q2.   Simplify fully $\dfrac{18x^2 - 12x}{18x^2 - 8}$

Q3.   Make x the subject of the formula

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

Q4.
(a)
(i)   Factorise $x^2 - 10x + 25$

(ii)   Hence, or otherwise, solve the equation

$$(y - 3)^2 - 10(y - 3) + 25 = 0$$

(b)   Simplify $\dfrac{x^2 - 9}{x^2 + 3x}$

Q5.   Simplify fully $\dfrac{x^2 - 16}{3x^2 + 10x - 8}$

Q6.   Solve the equation $(2x - 3)^2 = (x - 1)(x + 1)$

Give your solutions to 2 decimal places.

Q7.   Solve the equation $\dfrac{x}{x + 1} - \dfrac{2}{x - 1} = 1$

Q8.

(a)   Show that $(p + q)^2 \equiv p^2 + 2pq + q^2$

(b) p and q are two numbers. The sum of p and q is 10. The product of p and q is 18

Work out the value of $p^2 + q^2$

Q9.

(a)   Expand and simplify $2x^2(x + 6) + 3x(x - 5)$

(b)   Factorise fully $3mh^2 - 15m^2h$

(c)   Simplify fully $4rs^2 \times 5r^3s^4$
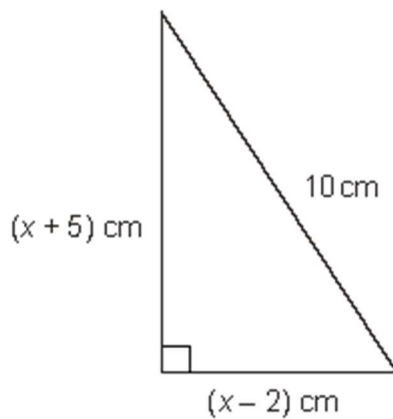
(d)   Solve $9x^2 + 29x - 28 = 0$

Q10.

(a)
(i)   Factorise $x^2 - x - 2$

(ii)   Hence, solve $x^2 - x - 2 = 0$

(b)   Simplify $\dfrac{3x+2}{x^2 - x - 2} + \dfrac{1}{x+1}$

Q11. This right-angled triangle has sides of lengths $(x - 2)$ cm, $(x + 5)$ cm and 10 cm.

$10\,cm$

$(x + 5)\,cm$

$(x - 2)\,cm$ Not drawn accurately

Calculate the value of x.

Q12.   Prove that $\dfrac{n}{n-4} - \dfrac{n+5}{n+6} = \dfrac{5(n+4)}{(n-4)(n+6)}$

Q13.   Make x the subject of the formula $y = \dfrac{2x+3}{x-4}$

Answers

M1 $x^2 + 8x + 16$

M2. $\dfrac{3x}{(3x+2)}$

M3. $y(x - 3) = 3x + 4$

$yx - 3y = 3x + 4$

$yx - 3x = 3y + 4$

$x(y - 3) = 3y + 4$

$x = (3y + 4)/(y - 3)$

M4.

(a)

(i) $(x - 5)(x - 5)$ or $(x - 5)^2$

(ii) Replace x with $(y - 3)$, $\quad y = 8$

(b) Factorise numerator: $(x - 3)(x + 3)$

Factorise denominator: $x(x + 3)$

Cancel to give $\quad \dfrac{x - 3}{x}$

M5. Numerator $= (x + 4)(x - 4)$

Denominator $= (3x - 2)(x + 4)$

Answer $= (x - 4)/(3x - 2)$

M6 $\dfrac{12 \pm \sqrt{(24)}}{6}$

2.82 **and** 1.18

M7 -1/3

M8 64

M9.

(a) $2x^3 + 15x^2 - 15x$

(b) $3mh(h - 5m)$

(c) $20r^4s^6$

(d) $(9x - 7)(x + 4)$ $7 / 9$ and -4

M10.

(a)
(i) $(x + 1)(x - 2)$
(ii) $(x =) -1$ and 2

(b) $\dfrac{4x}{(x+1)(x-2)}$ or $\dfrac{4x}{(x^2 - x - 2)}$

M11. $(x + 5)^2 + (x - 2)^2 = 10^2$ Answer to 1dp = 4.6,

M12. $\dfrac{n(n+6)}{(n-4)(n+6)}(-)\dfrac{(n+5)(n-4)}{(n-4)(n+6)}$

M13. $y(x - 4) = 2x + 3$

$xy - 4y = 2x + 3$

$xy - 2x = 4y + 3$

$x(y - 2) = 4y + 3$

$(x =)$ $\dfrac{(4y + 3)}{(y - 2)}$

Worthing College

Getting Ready For Mathematics Year 1 Cover Sheet

Name						Course		Mathematics Year 1					
GCSE Maths Grade					**GCSE Further Maths Grade**					**GCSE Statistics Grade**			
A	B	C	D	E	F	G	H	I	J	K	L	M	Test

Teacher Feedback

Skills / Criteria

Your teacher will provide you with feedback on your skills, based on the following criteria:

1. Subject knowledge and ability to choose the correct method to solve a problem.
2. Accuracy of numerical calculations.
3. Clarity of mathematical communication – how well you show your workings and lay out your work.
4. Your quality of English communication when a written answer is required.

Strengths	Areas For Improvement

English skills to be addressed e.g. SPAG: YES/NO

Result:	Pass / Resubmit