

Mathematics

Home Learning Book – Learning Cycle 1



Mathematics Year 11 Sets 3C & 3D

Name: _____ Tutor Group: ____

Maths Teacher(s): _____

Learning Cycle 1

| Cycle.Week | | | | | | | |
|-------------|-----|----|----|----|----|----|-------------------------------------|
| Sep 2018 | 1.1 | 3 | 4 | 5 | 6 | 7 | |
| | 1.1 | 10 | 11 | 12 | 13 | 14 | Week 1 HW due |
| | 1.2 | 17 | 18 | 19 | 20 | 21 | Week 2 HW due |
| | 1.3 | 24 | 25 | 26 | 27 | 28 | Week 3 HW due |
| Oct 2018 | 1.4 | 1 | 2 | 3 | 4 | 5 | Week 4 HW due |
| | 1.5 | 8 | 9 | 10 | 11 | 12 | Week 5 HW due |
| | 1.6 | 15 | 16 | 17 | 18 | 19 | Week 6 HW due |
| | | 22 | 23 | 24 | 25 | 26 | Half Term |
| | | 29 | 30 | 31 | 1 | 2 | Half Term |
| Nov 2018 | 1.7 | 5 | 6 | 7 | 8 | 9 | Week 7 Hegarty Revision due (x4) |
| | 1.8 | 12 | 13 | 14 | 15 | 16 | Assessment Week |
| | 1.9 | 19 | 20 | 21 | 22 | 23 | Super Teaching Week |
| | | | | | | | |

- During the Assessment Week (week 8), students will be assessed on the material that they have covered the previous seven weeks.
- The questions in the homework are mainly consolidation of work covered in previous years and of key skills. However, if there are any topics students are not understanding there are Hegarty Maths video clips to watch that explain that topic. Please see the opposite page for further information.
- In week 7 teachers will be checking that all 4 Hegarty Maths revision templates have been completed. The idea is that these are completed throughout the cycle and not all left until week 7. Please see the 'Revision Guide' document to inform what topics should be covered as part of this revision.
- Alongside completing the tasks in this booklet we also expect students to be making regular use of the Hegarty Maths website for independent study.


This can be to go over things covered in class, to revise for upcoming tests or to work on areas of weakness that were identified in previous tests.

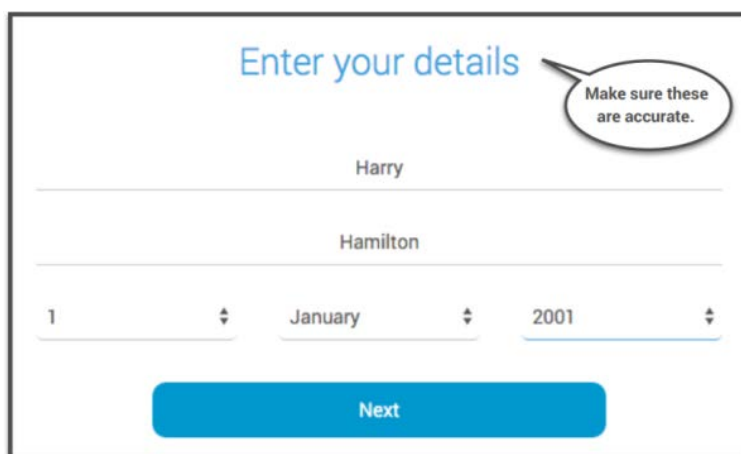
Cycle 1 Homework help

Please use the clip numbers in the table below to look up areas of weakness on the Hegarty Maths website.

| Question | Topic | Hegarty Maths clip number |
|----------|---|---------------------------|
| 1, 2 | Expressing as a product of primes/HCF / LCM | 27, 30, 31, 33, 34 |
| 3, 4 | Finding the nth term | 198 |
| 5, 6 | Order of operations | 75 |
| 7, 8 | Multiplication | 21, 48 |
| 9, 10 | Division | 22 |
| 11, 12 | Addition and subtraction of mixed numbers | 64, 66 |
| 13, 14 | Calculating the percentage of a quantity | 85, 86 |
| 15, 16 | Expanding brackets | 160, 161 |
| 17, 18 | Solving linear equations | 184, 185, 186 |
| 19, 20 | Substitution | 278, 279 |

To log in to Hegarty Maths, go to <https://hegartymaths.com/>

Click on the green  button and select 'Student Log in'.



Enter your details

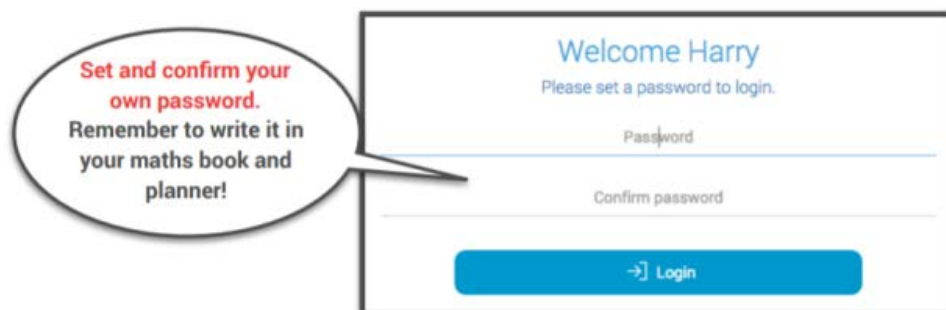
Make sure these are accurate.

Harry

Hamilton

1 January 2001

Next



Welcome Harry

Please set a password to login.

Password

Confirm password

Login

Set and confirm your own password. Remember to write it in your maths book and planner!

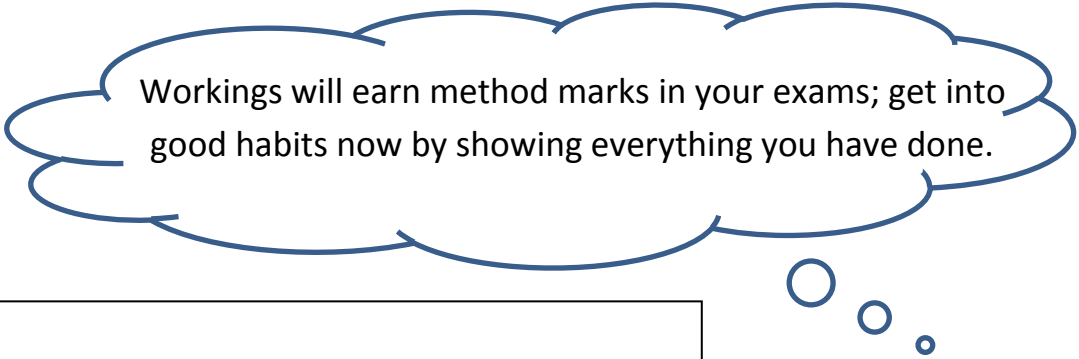
Teachers do not have access to student passwords. If you forget your password please click on 'request a password reset' and speak to your teacher during your next lesson.

| | | | |
|--|--|---|--|
| Question 1 Find the highest common factor of 150 and 135 | Question 2 Find the highest common factor of 90 and 60 | Question 3 Find the nth term of 14, 23, 32, 41,... | Question 4 Find the 50th term of 0, 3, 6, 9,... |
| Question 5 Work out $4 \times 6 - 4 \times 5$ | Question 6 Work out $40 - 8 \times 2$ | Question 7 Work out $35 \times 3.5 =$ | Question 8 Work out $70 \times 4.8 =$ |
| Question 9 Work out $510 \div 15 =$ | Question 10 Work out $3738 \div 21 =$ | Question 11 $1\frac{2}{3} + 1\frac{1}{2} =$ | Question 12 $3\frac{3}{10} - \frac{1}{2} =$ |
| Question 13 Find 55% of £220 | Question 14 Find 35% of £140 | Question 15 Expand $5(7 - 5x)$ | Question 16 Expand and simplify $2(2x + 3) + 3(5x + 4)$ |
| Question 17 Solve $3x + 2 = 2x + 7$ | Question 18 Solve $8x - 4 = 7x - 1$ | Question 19 Work out the value of $3y - 10$ when $y = -1$ | Question 20 Work out the value of $17 + 5b$ when $b = 1$ |

SKILLS CHECK

Score

You must show your workings here:

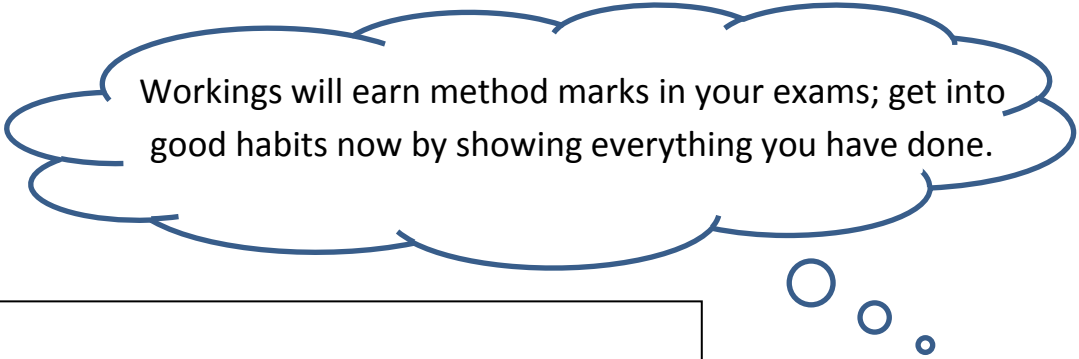


Workings will earn method marks in your exams; get into good habits now by showing everything you have done.

Parent/Carer Comment:

| | | | |
|---|--|---|---|
| Question 1 What is the 6th multiple of 7? | Question 2 Find the lowest common multiple of 14 and 6 | Question 3 Find the nth term of 4, 7, 10, 13,... | Question 4 Find the 50th term of 12, 19, 26, 33,... |
| Question 5 Work out $11 \times (5 + 2)$ | Question 6 Work out $9 + 6 \times 5$ | Question 7 Work out $84 \times 4.5 =$ | Question 8 Work out $85 \times 8.9 =$ |
| Question 9 Work out $3780 \div 30 =$ | Question 10 Work out $3000 \div 25 =$ | Question 11 $1\frac{1}{7} + 1\frac{2}{3} =$ | Question 12 $2\frac{4}{5} - 1\frac{1}{3} =$ |
| Question 13 Find 95% of £880 | Question 14 Find 35% of £460 | Question 15 Expand $4(5 - 2x)$ | Question 16 Expand and simplify $3(3x + 4) + 2(2x - 3)$ |
| Question 17 Solve $5x - 3 = 2$ | Question 18 Solve $12x - 2 = 10$ | Question 19 Work out the value of $4x - 5$ when $x = 0.5$ | Question 20 Work out the value of $24 - 4b^2$ when $b = -1$ |

You must show your workings here:

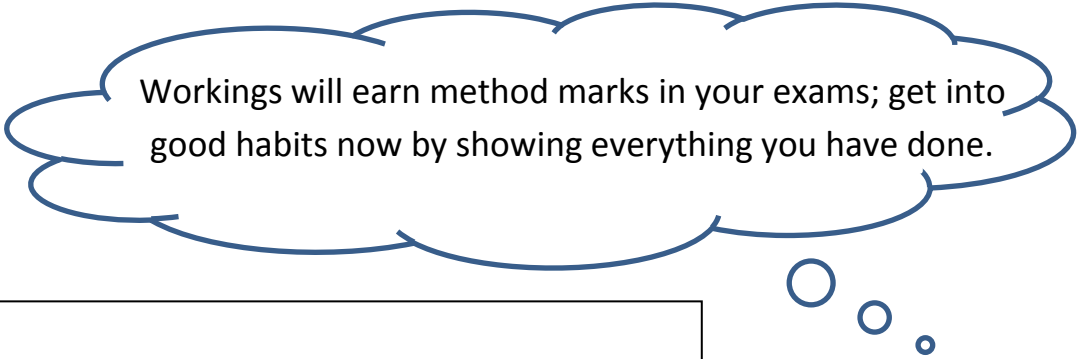


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Parent/Carer Comment:

| | | | |
|---|---|--|--|
| Question 1 List the factors of 26 | Question 2 List the factors of 50 | Question 3 Find the nth term of 8, 17, 26, 35,... | Question 4 Find the 50th term of 2, 8, 14, 20,... |
| Question 5 Work out $38 - 9 \times 4$ | Question 6 Work out $3 + 10 \times 3$ | Question 7 Work out $48 \times 8.7 =$ | Question 8 Work out $72 \times 5.4 =$ |
| Question 9 Work out $6216 \div 42 =$ | Question 10 Work out $2600 \div 25 =$ | Question 11 $2\frac{2}{3} + 2\frac{1}{2} =$ | Question 12 $3\frac{2}{5} - \frac{1}{2} =$ |
| Question 13 Find 75% of £380 | Question 14 Find 45% of £80 | Question 15 Expand $6(1 - 3x)$ | Question 16 Expand and simplify $4(2x - 4) - 4(5x + 3)$ |
| Question 17 Solve $2x - 8 = -4$ | Question 18 Solve $5x + 4 = 1.5$ | Question 19 Work out the value of $3y + 9$ when $y = 1$ | Question 20 Work out the value of $17 - y$ when $y = 1$ |

You must show your workings here:

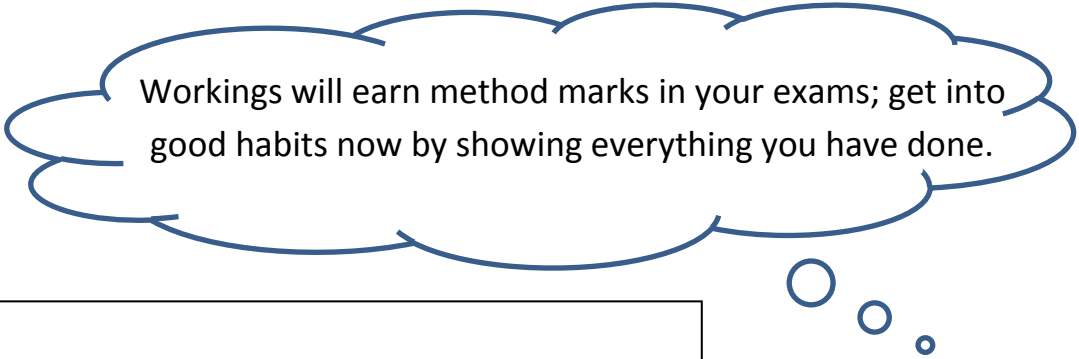


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Parent/Carer Comment:

| | | | |
|---|---|--|---|
| Question 1 Find the lowest common multiple of 64 and 40 | Question 2 Find the highest common factor of 72 and 135 | Question 3 Find the nth term of 1, 3, 5, 7,... | Question 4 Find the 50th term of 6, 15, 24, 33,... |
| Question 5 Work out $12 \times (8 + 4^2)$ | Question 6 Work out $25 - 9 \times 2$ | Question 7 Work out $42 \times 1.3 =$ | Question 8 Work out $51 \times 4.6 =$ |
| Question 9 Work out $5320 \div 35 =$ | Question 10 Work out $4620 \div 42 =$ | Question 11 $3\frac{5}{8} + \frac{1}{3} =$ | Question 12 $3\frac{2}{5} - 2\frac{1}{2} =$ |
| Question 13 Find 35% of £640 | Question 14 Find 80% of £860 | Question 15 Expand $2(3x - 1)$ | Question 16 Expand and simplify $4(2x + 4) + 3(3x - 5)$ |
| Question 17 Solve $6x - 2 = 4x + 10$ | Question 18 Solve $2(3x - 5) = 2$ | Question 19 Work out the value of $20 - 4c$ when $c = 1$ | Question 20 Work out the value of $30 - 4y$ when $y = -2$ |

You must show your workings here:

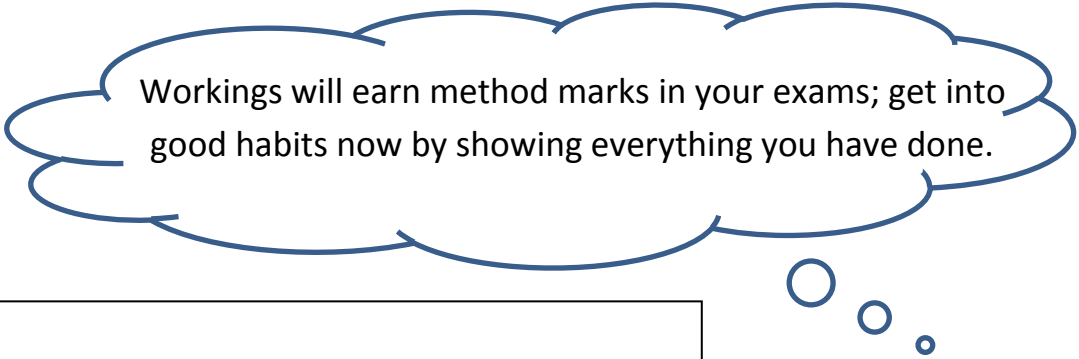


Workings will earn method marks in your exams; get into good habits now by showing everything you have done.

Parent/Carer Comment:

| | | | |
|--|--|---|--|
| Question 1 Find the highest common factor of 36 and 18 | Question 2 What is the 6th multiple of 13? | Question 3 Find the nth term of 6, 8, 10, 12,... | Question 4 Find the 50th term of 6, 12, 18, 24,... |
| Question 5 Work out $2 + 4 \times 4^2$ | Question 6 Work out $36 - 4 \times 3$ | Question 7 Work out $54 \times 1.2 =$ | Question 8 Work out $57 \times 2 =$ |
| Question 9 Work out $4830 \div 35 =$ | Question 10 Work out $768 \div 24 =$ | Question 11 $2\frac{1}{3} + 2\frac{1}{2} =$ | Question 12 $2\frac{1}{4} - \frac{1}{2} =$ |
| Question 13 Find 80% of £1000 | Question 14 Find 25% of £740 | Question 15 Expand $4(7 - 2x)$ | Question 16 Expand and simplify $4(2x - 4) - 3(3x + 2)$ |
| Question 17 Solve $5(8x + 5) = 265$ | Question 18 Solve $11x + 6 = -16$ | Question 19 Work out the value of $4c - 6$ when $c = 3$ | Question 20 Work out the value of $4a - 5$ when $a = -1$ |

You must show your workings here:

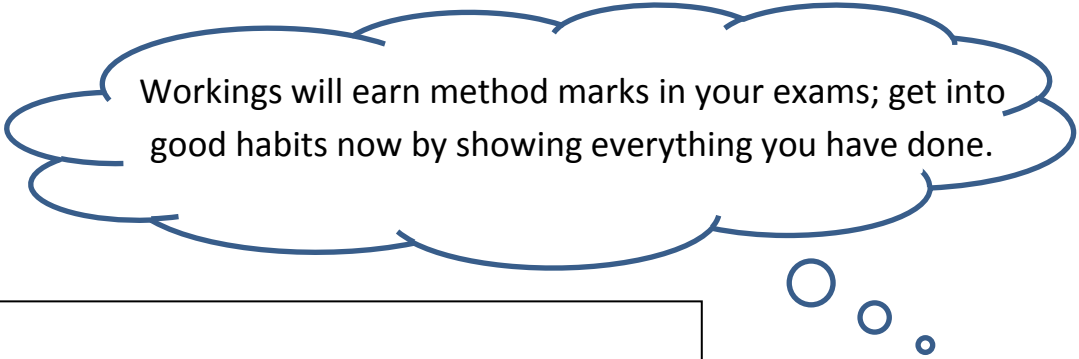


Workings will earn method marks in your exams; get into good habits now by showing everything you have done.

Parent/Carer Comment:

| | | | |
|---|---|---|---|
| Question 1 Find the highest common factor of 70 and 126 | Question 2 List the factors of 25 | Question 3 Find the nth term of 10, 16, 22, 28,... | Question 4 Find the 50th term of 2, 8, 14, 20,... |
| Question 5 Work out $7 \times (7 + 2^2)$ | Question 6 Work out $12 + 4 \times 2^2$ | Question 7 Work out $57 \times 5.3 =$ | Question 8 Work out $84 \times 9.8 =$ |
| Question 9 Work out $2752 \div 43 =$ | Question 10 Work out $2790 \div 45 =$ | Question 11 $2\frac{1}{6} + \frac{1}{2} 4 =$ | Question 12 $1\frac{3}{4} - 1\frac{1}{2} =$ |
| Question 13 Find 90% of £360 | Question 14 Find 20% of £420 | Question 15 Expand $5(5 + 2x)$ | Question 16 Expand and simplify $3(4x - 3) - 3(5x - 2)$ |
| Question 17 Solve $3(4x - 3) = -33$ | Question 18 Solve $14x - 8 = -64$ | Question 19 Work out the value of $29 - 2x$ when $x = -2$ | Question 20 Work out the value of $20 + 3y^2$ when $y = -2$ |

You must show your workings here:



Workings will earn method marks in your exams; get into good habits now by showing everything you have done.

Parent/Carer Comment:

Revision – Week 7

In Week 7 we will collect 4 pages of revision.

These can be completed at any time during the cycle, but they will all be checked in Week 7.

Please plan your time carefully so that you meet this deadline.

You should choose topics from the list opposite which details what has been covered during this cycle.

Getting in to good revision habits is vital for success in GCSE maths.

Revision is most effective when it involves ‘doing’ – this approach is proven to aid retention and recall of information. This is why we are asking that you;

- Take notes from the videos on Hegarty Maths, writing down key information and examples.
- Write down your workings out for each quiz that you complete and mark this as you go, noting corrections for any questions that you got wrong.
- Record your quiz score and rate your confidence level.

If you can make the above a habit revision will be much easier for you when you are preparing for exams. We have provided an example of what good revision looks like.

Hegarty Maths also tracks everything that you do, so if you complete lots of revision from Y7 then by the time you get to Y11 it will be able to tell you your weaknesses; these can then form a big part of your final revision plan. The ‘Fix Up 5’ feature will give you questions and support on these.

As ever, if you have any questions please see your teacher well before the deadline.

Cycle 1 – Revision Guide

The lists below contain topics we would advise revising before the November PPEs.

Please make sure you are looking at the correct tier!

Topics marked with a * appear on both tiers (crossover topics).

Foundation Tier

| Topic | Hegarty Maths | Method Maths |
|---------------------------------|--------------------|--------------------|
| Rounding | 17, 56 | N10 |
| Simplify expressions | 156 – 159 | A02 |
| Equivalent fractions | 59, 60 | N09 |
| Probability | 349 – 356 | D04, D05, D11 |
| Proportion | 339 – 342 | N16 |
| Bar charts | 425 | D01 |
| %, fraction, ratio | 77, 85, 330, 332 | N14, N17, N18, N23 |
| Substitution | 155, 189 | A04 |
| Expand brackets | 160, 161 | A10 |
| Solve equations | 178 – 183 | A05 – A06 |
| Set notation | 370 – 376 | |
| Fractions four operation* | 66, 68, 70 | N24 |
| Combine ratio* | 336 | |
| Percentage profit* | 760 | N22 |
| Estimation* | 131 | N11 |
| Plans & elevations* | | S22 |
| Straight line graphs | 206 – 213 | A17 |
| Vectors* | 623 – 626 | S37 |
| Indices* | 102 – 107 | N08, A07, A25 |
| Converting units | 692, 695, 698 | S06 |
| Listing outcomes | 670 | D09 |
| Multiples, factors, primes | 27, 28, 31, 33, 34 | N04 |
| Pie charts | 427 – 429 | D07 |
| Frequency trees | 368, 369 | |
| Recipes | 739 – 742 | N19 |
| Circumference | 534 – 537 | S18 |
| Quadratic graphs* | 251 | A20 |
| Volume of a prism | 570 | S19 |
| Sequences | 197, 198 | A16 |
| Use a calculator | 129 | N27 |
| Timetables | | F07 |
| Scale drawing | 679 | S07 |
| Stem & leaf diagram | 430, 431 | D08 |
| Standard form* | 122 – 125, 128 | N28 |
| Scatter graphs* | 453, 454 | D16 |
| Area* | 557, 559 | S01, S13 |
| Probability trees* | 361 | D22 |
| Trigonometry | 508 – 512 | S27 |
| Angles in polygons* | 561 – 563 | S16 |
| Similar triangles | 611 – 613 | S26 |
| Change the subject of a formula | 280 – 284 | A26 |

Higher Tier

| Topic | Hegarty Maths | Method Maths |
|-------------------------------------|----------------------|---------------|
| Fractions four operations* | 66, 68, 70 | N24 |
| Combine ratio* | 336 | |
| Percentage profit* | 760 | N22 |
| Estimation* | 131 | N11 |
| Plans & elevations* | | S22 |
| Surface area* | 585 | S17 |
| Reflection | 639 – 641, 652 | S23 |
| Sharing in a ratio | 332 – 334 | N23 |
| Indices | 102 – 110 | N08, A07, A25 |
| Box plots | 434 – 436 | D21 |
| Circle theorems | 594 – 602 | S31 |
| Proof | 325, 326 | A31 |
| Surds | 113 – 119 | N33 |
| Algebraic proportion | 343 – 347 | N31 |
| Factorising | 223 – 227 | A11, A22 |
| Probability | 351 – 356 | D17 |
| Simplifying algebraic fractions | 229 | A33 |
| Transformation of graphs | 303 – 313 | A35 |
| Solve quadratic inequalities | 277 | |
| Simplify expressions* | 1556 – 159 | A02 |
| LCM, HCF* | 31, 34, 36 | N13 |
| $y=mx+c$ * | 208, 209 | A23 |
| %, ratio* | 85, 332 | N14, N17, N18 |
| Quadratic graphs* | 251 | A20 |
| Enlargement | 645 | S24 |
| Two way table | 422 – 424 | D10 |
| Compound interest | 94 | N26 |
| Vectors* | 623 – 626 | S37 |
| Functions | 288, 292 – 296 | |
| Recognising graphs | 348 | |
| Compound measures | 716 – 724, 734 | S21 |
| Probability trees | 361 | D22 |
| Drawing circle graphs | 314, 315, 319 | A20 |
| Histograms | 442 – 449 | D24 |
| 3D trigonometry | 509 – 514 | S27, S32 |
| Bounds | 137 – 139 | N10, N29 |
| Standard form* | 122 – 125, 128 | N28 |
| Scatter graphs* | 453, 454 | D16 |
| Area* | 557, 559 | S01, S13 |
| Expected frequency* | 355 | D17 |
| Angles in polygons* | 561 – 563 | S16 |
| Solve equations unknowns both sides | 184 | A06 |
| Repeated percentages | 91, 92 | |
| Similar shapes (area & volume) | 615 – 621 | S35 |
| Combinations of events | 671 | D09 |
| Area under the curve | | |
| Trigonometry (sine/cosine) | 521 – 524, 527 – 530 | S36 |
| Iteration | 322 | |
| Venn diagrams | 384 | |
| Congruent triangle proof | 682 – 690 | A30 |

Hegarty Maths Revision

| | |
|-----------------------------------|---|
| Topic: 30 : Prime Factorisation 2 | Have you checked through the required 'Building Blocks'? <input checked="" type="checkbox"/> 29 |
|-----------------------------------|---|

Notes from the video:

Any composite number can be uniquely expressed as a product of primes.

Product means times/multiply.

Prime numbers 2, 3, 5, 7, 11, 13, 17, 19, ...

Divisibility tests

Divisible by 2

number ends in 0, 2, 4, 6, 8

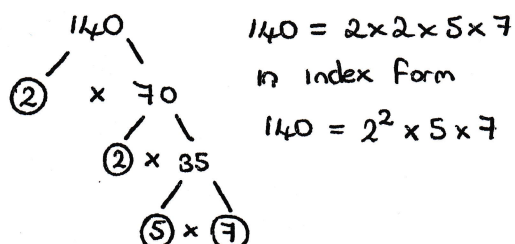
Divisible by 3

sum of digits is divisible by 3

Divisible by 5

ends in 0, 5

Write 140 as a product of primes

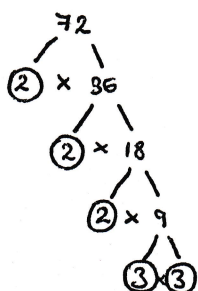


Quiz questions (showing workings and marking work as you go):

1. $125 = 5^3$ ✓

2. $81 = 3^4$ ✓

3. $72 = 2^3 \times 3^2$ ✓



Use X on online keyboard not letter x

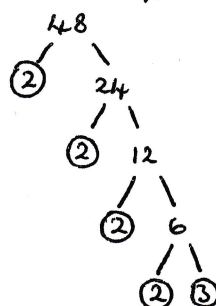
4. $200 = 2^3 \times 5^2$ ✓

5. $24 = 2^3 \times 3$ ✓

6. $12 = 2^2 \times 3$ ✓

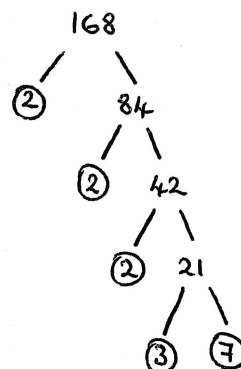
7. $20 = 2^2 \times 5$ ✓

8. $48 = 2^4 \times 3$ ✓



9. $168 = 2^3 \times 3 \times 7$ ✓

10. $36 = 2^2 \times 3^2$ ✓



Quiz score:




100 %

My confidence level:



Hegarty Maths Revision




Checklist: 1. Watched video and taken notes; 2. Completed the quiz, writing down your workings and score; 3. Completed the 'My confidence level' section.

| | |
|---|---|
| Topic: | Have you checked through the required 'Building Blocks'? <input type="checkbox"/> |
| Notes from the video: | |
| Quiz questions (showing workings and marking work as you go): | |
| Quiz score: % | My confidence level:    |

Remember to see your teacher if you have watched the video on Hegarty Maths and still do not understand.

Hegarty Maths Revision




Checklist: 1. Watched video and taken notes; 2. Completed the quiz, writing down your workings and score; 3. Completed the 'My confidence level' section.

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|---|---|
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Hegarty Maths Revision




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|---|---|
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| Notes from the video: | |
| Quiz questions (showing workings and marking work as you go): | |
| Quiz score: % | My confidence level:    |

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Hegarty Maths Revision

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| | |
|---|---|
| Topic: | Have you checked through the required 'Building Blocks'? <input type="checkbox"/> |
| Notes from the video: | |
| Quiz questions (showing workings and marking work as you go): | |
| Quiz score: % | My confidence level:    |

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