BROAD HORIZON
— TUITION CENTRE —

Mock Exam 45

ANSWERS

Year 5

GL Practice Papers

Broad Horizon Tuition

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BROAD HORIZON
TUITION CENTRE

11+ Birmingham and Warwickshire

Practice Test 10

Paper A

Answers

BROAD HORIZON
— TUITION CENTRE —

Teacher's Guide

Mock Exams

1) Timing

Each section is individually timed. Timings are written on the teachers answer sheet (at the end of this guide).

Practice questions are completed outside of the time limit.

Students must get used to working out their **start and end times** and jotting them down on their exam paper, for every single section. Teachers must not tell students the start and end times, they need to work it out for themselves.

E.g.
Start 11:07
End 11:22

Might be a good idea to stop their time 30 seconds into the section and check who did and did not work out their start and end times (the vast majority won't have, or they will only do it for the first section and forget about it for the rest of the mock). This calculation must **only** be done once their time has started, because they're not allowed to write anything outside of the time limit.

Students **cannot** manage their time if they don't even know what time they're going to finish, and they cannot know what time they're going to finish if they don't know what time they started.

Every few minutes students should be **looking at the clock** so they know whether they're working too fast or too slow.

Also, for the really short sections, like NVR 3 minutes we don't advise they spend time writing down start and end times, since the time is so short, they can't afford to waste it, they should just look at the clock and know what time they're going to finish.

In the 11 plus exam, they won't have a digital timer on the board, they need to **get used to keeping an eye on the clock**.

The teacher should have their own digital timer which only they can see, maybe on their phone, or even on the tablet. Please turn off the TV screens so students can not use the digital time as they won't have this in their real exams.

Time limits are not so strict at this stage. It's their first mock exam. If they need a few extra minutes to finish, we can give them that. Timings will become stricter as the months go on with absolute strict timings around July/August.

You should **go straight into the mock exam** at the start of the lesson, do not start with marking homework, you'll run out of time on the mock.

Keep in mind it will take about 25/30 minutes to read out the answers and collect in the scores.

The mock exam itself will take about 90 minutes plus 30 minutes marking and collecting scores plus break in between, plus the extra time, this will easily take up the majority of the lesson.

Time management is a huge component of what students need to get used to with these mock exams.

Students are to be given a **time warning** when there is 1 minute remaining – this is the only time warning they are given.

2) Scores

Scores must be logged on the excel sheet.

The level of these mocks is very similar to the real 11 plus exam, and the students are about 10 months away from the 11 plus, so they're not expected to get really high scores right from the start. On the first mock exam, they're not expected to get higher than about 50%. If they get approx. 50% on the first mock they've done quite well. Anything below 40% would be a concern.

The next mock exam is at the end of January, with 1 at the end of February and another one at the end of March (after which they will have a mock exam almost every week). Their scores should typically go up by about 5-10% each month, eventually achieving about 75-85% around July/August.

Students must write down their score breakdown on their exam paper, as shown below:

Attempt 1

English

VR

Maths

NVR

TOTAL =	**/ 142**	**%**

3) Marking and Cheating

The pressure of achieving good scores **will** cause students to cheat whilst marking their work even if they seem like the type not to cheat. We've learnt over the years there isn't a type who cheat, when the pressure is on – they are all capable of it. Every year we see some of the most intelligent students, very capable, yet perform poorly on the exams because they cannot handle the pressure. Unfortunately, the pressure comes hand in hand with exams like the 11 plus and this is something we need students to get over as quickly as possible.

Anyone who gets over 45% their papers will be collected in and one of the admin team will re-mark their exam paper to double check them.

Please warn students about marking their work correctly before you start marking.

We need to get cheating out of their system very early on. We cannot help the students if we think they are doing really well, when the reality is otherwise.

All mock exams are self-marked in a different coloured pen (no peer marking, that has its own issues), so nobody should be seen holding a pencil whilst marking. They will often leave the boxes blank during the exam and then fill them in whilst you read out the answers and then tick them. Another common one is for them to write in multiple answers for 1 question and then tick them. Quite often they might only cheat on a few questions per section thinking it won't arouse suspicion, but those marks add up.

It might be a good idea to **collect in all the answering sheets** once you're done marking, and just have a quick flick through the pages.

4) Lesson Format

It is likely the entire lesson will be spent on the mock exam.

Students must complete the entire mock exam before we mark. We don't mark after each section like in a normal lesson; students need to **get used to the intensity** of sitting two-1-hour papers. They can have their break around their usual break time, however, please ensure it's at the end of a section and we're not stopping in the middle of a section to have a break.

They'll be given a 2nd blank answering sheet, which they take home and re-attempt the entire paper again from scratch – this is the homework on a mock exam week.

At the start of the following lesson, you'll mark their 2nd attempt, log their 2nd attempt scores on excel, and then go through the entire mock exam **question by question and explain anything they've got wrong**. (If there happens to be time left, you'll start the next lesson pack.)

5) Parent-Teacher Meetings

Meetings with parents will follow the first few mock exams, so we can **address any issues early on**.

We need to put plans in place for students who are struggling in specific areas, we can print extra content for them to cover at home, extra work for them to do during their holidays etc. Please let the manager know what work is needed and for which students so we can get this printed for them and **put a plan of action in place**.

Any plans put in place, please log them on **Trello** so the whole team is onboard and aware.

6) Students Answering Sheets

There is to be **no** working out on the answering sheet itself, answering sheets need to be clean. Working out on the exam paper only.

Students must rub out wrong answers and not cross them out.

Students must tick the answering sheet as they go along and not transfer their answers at the end, if they get used to transferring answers at the end and they run out of time, they could end up losing marks for entire sections.

Again, it might be a good idea to collect in all the answering sheets once you're done marking, and just have a quick flick through the pages.

7) Equipment

There is to be **no** use of **any** other equipment such as highlighters, pens, rulers, protractors etc.

Pencils and erasers only.

BROAD HORIZON
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Paper 1

English Comp 1 – 12 Minutes

Verbal Reasoning 1 - 8 Minutes

Maths 1 - 15 Minutes

Non -Verbal 1:

Subsection 1 – 3 Minutes

Subsection 2 – 3 Minutes

Spatial Subsection 1 – 3 Minutes

Paper 2

English Comp 1 – 12 Minutes

Verbal Reasoning 1 - 9 Minutes

Maths 1 - 15 Minutes

Non -Verbal 1:

Subsection 1 – 3 Minutes

Subsection 2 – 3 Minutes

Spatial Subsection 1 – 3 Minutes

English

Practice Section

1 **E**

2 **A**

Test

1 **B**

The words 'should', 'have', 'known', 'would' and 'find' are verbs. The words 'should' and 'would' are modal verbs. After a modal verb, you have a verb in its base form ('have' and 'find'). The word 'lost' is being used as an adjective to describe Joanna's 'Viking husband'. Likewise, the word 'gone' is being used as an adjective to describe him. It is being used to mean *absent*.

2 **E**

She was a 'podiatrist' (line 5). A podiatrist specialises in treating the feet. You may be able to work this out from the use of the prefix *pod-*. A *pod*ium is something you stand on (you stand using your feet).

3 **D**

Aksel is referred to as Joanna's '*Viking* husband' (lines 1–2). Vikings were originally from Scandinavia (Denmark, Norway and Sweden). Aksel 'left for Denmark' (line 9), so it is reasonable to conclude that he is Danish.

4 **B**

Quotation marks can be used to show sarcasm, to mean *so-called*. The phrase *so-called* expresses a view that a name or term is inappropriate. We are being told that Joanna thought it was inappropriate or inaccurate to say she and Aksel had *broken up* – she did not see it as a typical break-up.

5 **A**

An adverb usually modifies a verb by giving information about how, when, where, why, under what conditions or to what degree it happened. The word 'never' is telling us to what degree Joanna heard from Aksel.

6 **E**

'Eleven years ago they had broken up after living together for ten' (lines 8–9). They were together for ten years and have been apart for eleven years. 10 + 11 = 21. This means they met over twenty-one years ago, making E more accurate than C.

7 **D**

There is no mention of her getting a legal divorce from Aksel. He was never legally her husband, so they could not have got divorced. He was a 'common-law' husband (line 7), which means he was not legally her husband. After the end of her relationship with Aksel, Joanna had more than one bereavement: she 'lost a mother' and 'was fully orphaned by her father's death' (line 13). She had tied the knot (got married): 'She'd married' (line 12). She had gone through childbirth or adoption: 'been made a mother' (line 12). She had separated from a partner: 'been legally divorced' (line 13). She had divorced Leo's father.

8 **A**

There is nothing to suggest he was tight-fisted (not willing to spend much money). We have 'Enormous and bearded, condescending and fond, ravenous' (lines 17–18), which describes both Aksel and Joanna's father. The word 'bearded' tells us Aksel had facial hair; 'condescending' tells us he could be patronising; 'Enormous' tells us he was large; and 'ravenous' tells us he had a healthy appetite.

9 **B**

'Mortifying' means *embarrassing*, *humiliating*, etc.

10 **B**

We do not have a rhetorical question in the third paragraph (a question used for effect or to make a point). We have personification (giving human characteristics to an inanimate object): 'insatiable [greedy] hands of Legomen' (line 35). Plastic toys cannot feel a desire for something. We have onomatopoeia (when a word mimics the sound it is describing): 'snapped' (line 34). We have a simile (a comparison using *like* or *as*): 'her father's cluttered bedroom was *like* the tank of an animal' (line 24). We have repetition: 'She **looked** and **looked** for him' (lines 25–26).

11 **C**

The sticker is on the back of Joanna's father's watch and says: '*Please bring to Aksel*' (line 28). This tells us Joanna's father wanted Aksel to have his watch.

12 **C**

We can infer the sticker was old because things yellow over a period of time (white things, such as fabric and paper, can become yellow with age).

13 **C**

We cannot deduce she was lonely and isolated. There is nothing to suggest she was, and we know she had friends: 'her friends' (line 19). We can deduce she was a caring mother because she wanted Leo to be happy. She agreed to take him to Legoland and bought him a bunk bed because she had always wanted one. She even found his heel to be special: 'Even his heel was fast asleep and *dear*' (line 50). We can deduce she had some negative feelings towards her father, as she was angry with him for not writing a will: 'The sticker was as close to a will as he'd left, goddamn him' (lines 39–40). We can deduce that she quite liked the idea of seeing Aksel again: 'She should probably—she thought, aware of the daft expression already on her face—attempt to honour [her father's instructions].' (lines 40–42). We can deduce she was not wealthy because of the quote 'come into the *little bit* of money that would allow them for the *first time* to travel abroad' (lines 43–44).

14 **E**

The word 'altitude' means *height*. Joanna did not know what height Leo would be at. We have the bunk bed being referred to shortly before the quote and shortly after, telling us it is about Joanna not knowing whether Leo would be in the top or lower bunk of the bed.

15 **C**

The word '*bring*' tells us that Joanna's father wanted her to deliver the watch to Aksel. This is certainly how Joanna interpreted it: '*Bring*, he'd written. Not *mail*, not *get*' (line 39). He wanted them to meet up. We know he thought highly of Aksel; therefore, it is logical to conclude he wanted them to meet up in the hope they would get back together. We know the note was intended for Joanna because he would not use the word 'Please' (line 28) if it was meant as a reminder to himself.

Verbal Reasoning

Practice Section

1 **clap** (Letters 4, 2, 3 and 1 of 'place'.)

2 **man** (Letters 6, 1 and 2 of 'anthem'.)

3 **15** (Subtract 3 each time.)

4 **22** (The difference increases by 1 each time.)

Test

1 **tin**

The second word is made from letters 2, 4 and 5 of the first word.

So, the word that completes the third pair is **tin**.

2 **put**

The second word is made from letters 5, 3 and 7 of the first word.

So, the word that completes the third pair is **put**.

3 **tear**

The second word is made from letters 7, 6, 3 and 2 of the first word.

So, the word that completes the third pair is **tear**.

4 **ant**

The second word is made from letters 6, 2 and 7 of the first word.

So, the word that completes the third pair is **ant**.

5 **sip**

The second word is made from letters 5, 2 and 8 of the first word.

So, the word that completes the third pair is **sip**.

6 **art**

The second word is made from letters 1, 4 and 7 of the first word.

So, the word that completes the third pair is **art**.

7 **ran**

The second word is made from letters 6, 5 and 2 of the first word.

So, the word that completes the third pair is **ran**.

8 **rat**

The second word is made from letters 7, 6 and 5 of the first word.

So, the word that completes the third pair is **rat**.

9 **120**

The rule is -15 each time.

So, the next number is 135 – 15 = 120.

10 **37**

There are two sequences.

You need to look at the odd terms.

The rule is -9 each time.

So, the next number is 46 – 9 = 37.

11 **9.6**

The rule is ×2 each time.

So, the next number is 4.8 × 2 = 9.6

12 **46**

There are two sequences.

You need to look at the odd terms.

The pattern is +4, +8, +12, …

The difference increases by 4 each time.

So, the next number is 30 + (12 + 4) = 30 + 16 = 46.

13 **16**

There are two sequences.

You need to look at the odd terms.

The rule is +4 each time.

So, the next number is 12 + 4 = 16.

14 **600**

Each number contains one non-zero digit.

This digit increases by one each time and moves one place value to the left.

So, in the next number the digit will be 6 and it will be in the hundreds place, giving 600.

15 **80**

There are three sequences.

You need to look at the 3rd, 6th and 9th terms

The rule is +20 each time.

So, the next number is 60 + 20 = 80.

16 **54**

There are two sequences.

You need to look at the odd terms.

The rule is -12 each time.

So, the next number is 66 – 12 = 54.

Mathematics

Practice Section

1 **C**

2 **A**

Test

1 **C**

The top shape formed is a quadrilateral, so its angles sum to 360°.

360 – (80 + 35 + 105) = 360 – 220 = 140°

The angle opposite this in the bottom triangle is also 140° (opposite angles formed by two crossing line are equal).

m = 180 – (140 + 15) = 180 – 155 = 25°

[Angles and Degrees]

2 **A**

16 and 25 are the only square numbers, so they must be cousins.

27 is the only cube, so that must be a cousin.

23 is the only prime, so that must be a cousin.

This leaves only 12 and 21.

Only 12 is listed as an answer option.

[Special Numbers]

3 **E**

Point y is four units up and one unit right from x.

When rotated 90° clockwise, it will be four units right and one unit down from x (which does not move).

This takes it to (8, 3).

[Position and Direction]

4 **D**

35 – 20 = £15

£15 = 1500p

1500p ÷ 3p = 500 texts

[Money]

5 **D**

You can write out the sequence:

2, 4, 8, 16, 32, 63, 128, 256, 512, 1024

This is the same as multiplying 2 by itself 9 times, i.e. 2×2^9.

[Sequences]

6 **B**

From the graph, 100 photographs cost 15p each:

15p × 100 = 1500p = £15

50 photographs cost 20p each:

20p × 50 = 1000p = £10

£15 – £10 = £5

[Statistics]

7 **C**

Orson eats one-third, so two-thirds remain.

50% or half of two-thirds is one-third.

So, Orson, Gretchen and Jake each eat one-third of the bag.

If 12 crisps is one-third, there were 12 × 3 = 36 crisps in the bag to begin with.

[Fractions, Decimals and Percentages]

8 **E**

In 1 litre of orange paint, 3 out of 5 parts are red, i.e. three-fifths:

1000 ÷ 5 × 3 = 600 ml

In 1 litre of purple paint, 1 out of 4 parts is red, i.e. one-quarter:

1000 ÷ 4 = 250 ml

600 – 250 = 350 ml

[Ratio and Proportion]

9 **C**

The area of a trapezium is the mean length of the two parallel sides multiplied by the perpendicular height.

The mean of the two parallel sides is $(x + 4x) \div 2 = 2.5x$

So, $2.5x \times 3x = 192$

You can use algebra to solve or test each of the answer options.

The correct value for x is **4**, i.e.

(2.5 × 4) × (3 × 4) = 10 × 12 = 120

If you do not know the formula for the area of a trapezium, you can split the shape into two triangles and one rectangle.

[Perimeter, Area and Volume; Algebra]

10 **B**

9 × 0.9144 = 8.2296 m

[Measurement]

11 B

Start by looking at times for Highbury & Islington.

See if you can find any matches at Kentish Town West.

When a train arrives at Highbury and Islington, the next train is at Kentish Town West.

There is a 10 minute gap between trains departing from Finchley Road, so Lucy left 10 minutes earlier than Will.

[Statistics]

12 A

600p ÷ 240p = 2.5 lots

2.5 lots of 50 papers = 125 papers

[Money]

13 E

Option A: $7 \times 5 + 3 = 38$

Option B: $7^2 \times 2 - 60 = 38$

Option C: $7 \times 3 + 3 + (7 \times 2) = 38$

Option D: $(7 + 12) \times 2 = 38$

Option E: $(7 - 3)^2 \times 2 = 32$

[BODMAS]

14 D

Add together the totals for the 31–40, 41–50 and 51–60 bars.

8 + 12 + 9 = 29

[Statistics]

15 D

Every hour, they will move 7 + 3 = 10 km closer together.

As the road is 40 km long, it will take 40 ÷ 10 = 4 hours for them to meet.

4 p.m. + 4 hours = 8 p.m.

[Speed, Distance and Time]

Non-Verbal Reasoning

Subsection 1

Practice Section

1 **B** (The figure rotates 60° clockwise each time.)

2 **B** (There is one more intersection between lines each time, and the question mark rotates 90° anticlockwise.)

Test

1 **B**

From left to right, one-sixth of the hexagon is changed to white each time, starting at the top and working in a clockwise direction.

2 **A**

From left to right on the top row and the bottom row, a new large outer shape is added each time and the existing shape(s) are reduced in size.

3 **C**

Looking at the triangles in pairs, the shape is reflected through the horizontal axis, enlarges and takes its line style from the line in the first triangle.

4 **D**

Looking at the triangles in pairs, the figure rotates 180° and the shading of the two parts is reversed.

5 **C**

From left to right on the top row and the bottom row, one shape is taken away each time (working from the bottom in the bottom row and from the top in the top row).

6 **E**

Looking at the triangles in pairs, the two shapes swap sizes and positions.

7 **C**

Looking at the triangles in sets of three, the line style from the first triangle and the shading from the small triangle in the second triangle determine the outline and shading of the circle in the third triangle.

8 **D**

From left to right on the top row and the bottom row, lines are added to the next corner of the triangle in an anticlockwise direction, and the number of lines added increases by one each time. The central shape is in pairs of triangles and rotates 180° from the first triangle in each pair to the second.

Non-Verbal Reasoning

Subsection 2

Practice Section

1 **E** (The two figures on the left are rotations of the same shape.)

2 **C** (The two figures on the left both have a total of eight sides.)

Test

1 **E**

The two figures on the left are both made up of a striped rectangle and a white semicircle.

2 **A**

The two figures on the left only have curved sides.

3 **C**

In each of the two figures on the left, there is a total of nine protrusions (points or arms).

4 **D**

In both figures on the left, the shield shape is identical. There are two matching small shapes, one above the shield and one inside it, and the shape inside the shield is shaded grey.

5 **C**

Inside the large shapes in both figures on the left, there is a small black circle and a small white duplicate of the large shape.

6 **D**

Both of the figures on the left are made from two long, parallel, vertical lines and one shorter horizontal line that connects the vertical lines. Two short thick lines are positioned together on one of the vertical lines. The circle floats freely and does not touch any lines.

7 **E**

In each of the figures on the left, three small shapes overlap the edges of the large shape. In one of the small shapes, the shading is the reverse of the shading in the other two shapes.

8 **B**

In each of the figures on the left, the large shape is open (it is not fully enclosed). The two lines with circles on the ends are positioned at 90° to each other; one has its circle inside the large shape, while the other has its circle outside.

Spatial Reasoning

Practice Section

1 **A**

2 **E**

Test

Try to visualise what the cube will look like when folded up.

Remember, faces that are separated by one square on the net will be on opposite sides of the cube – they cannot be next to each other.

Pay attention to the orientation of the different shapes in relation to each other and think about how they will rotate when the net folds.

Test

1 **D**

2 **C**

3 **A**

4 **E**

5 **D**

6 **E**

7 **B**

8 **B**

BROAD HORIZON
— TUITION CENTRE —

Mock Exam 45

11+ Birmingham and Warwickshire

Practice Test 10

Paper B
Answer Sheets

- This paper is divided into smaller, individually-timed sections that test English Comprehension, Verbal Reasoning, Mathematics and Non-Verbal / Spatial Reasoning.
- Each section starts with some untimed practice questions.
- All answers should be marked on the separate answer sheet provided.

Please turn over the page to begin the English Practice section.

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Visit us at www.BHT11plus.co.uk
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English

Test

1 **C**

'one-man police station' tells us that Sergeant Millom is the only police officer working in Beaminster. From this, we can deduce that no more police officers are needed because Beaminster is a small place and has very little crime. There is nothing to suggest that the police station is new or is closing down. Sergeant Millom will have to interact with people as a police officer, so there is nothing to suggest he is a solitary character who likes to work alone. There is no mention of any other police officers.

2 **A**

We know it is sunny: 'the sun shone'. We know it is breezy: 'the warm east wind carried…'. We know it is hot: 'in spite of the heat'. We can rule out B because it is not *still*. We can rule out C because it is not *inclement*. We can rule out D because it is not *hazy*. We can rule out E because we know it is not *chilly*.

3 **E**

The words 'peaceful', 'warm', 'east', 'persistent', 'distant' and 'German' are adjectives, so there are six in total.

4 **D**

The noise of the horse and cart could only echo between the houses if there are houses on both sides of the street.

5 **E**

If someone talks 'tripe', they talk nonsense. If you talk *balderdash*, *drivel*, *baloney* or *rubbish*, you are also talking nonsense. Tripe can refer to the stomach of an animal which is eaten as food, but not in this particular context.

6 **B**

Post-traumatic stress disorder is a mental health condition that is caused by living through trauma. It results in flashbacks and intrusive thoughts about the traumatic experiences. Millom is unable to forget the rats that he was in the trenches with, telling us he has flashbacks and intrusive thoughts about them. There is nothing to suggest that he is concerned about the welfare of the rats, is fond of them or that he befriended them. It is not about him having an amazing memory – it is about him being unable to stop thinking about the rats.

7 **B**

The word *ebullient* means cheerful, and we know Millom sees his son as cheerful: 'Tom laughing on his fifth birthday' and 'Tom still laughing when he went to join up.' We are told that Tom 'wasn't any kind of fighter' (line 24), so we can rule out *combative*. There is nothing to suggest that he sees his son as *languorous* (listless), *impractical* (he cannot be — he is a mechanic) or *capricious* (given to sudden changes of mood).

8 **C**

You should be able to work out from the word 'push' that it is to do with a forward movement.

9 **C**

'It should have been peaceful, but the warm east wind carried, like persistent distant thunder, the rumble of German guns.' This tells us that it would have been peaceful (tranquil) if it was not for the war.

10 **D**

Dunkirk identifies a particular place and is capitalised, making it a proper noun.

11 **C**

Millom has not done anything to offend him, so he is not *affronted*. He does not seem to be troubled or nervous, so *agitated* is not correct. He is not *meek* (gentle and quiet). His behaviour is not bad enough to be described as *abusive*. He is *abrupt* though. If you are abrupt, you are brief to the point of rudeness. Hillfield does not take time to politely introduce himself or explain the situation properly, so he is abrupt.

12 **D**

We can infer the spy is living in Beaminster, as it is the only logical reason for Hillfield seeking Millom's help. There is no reason to think that Tom is a spy, and we know he is in France.

13 **C**

Hillfield is an inspector, and Millom is a sergeant. An inspector is a higher rank in the police force than a sergeant is. An inspector is not the highest rank in the police force (a superintendent, for example, is a higher rank). An inspector is not a rank in the army. An inspector can be a person whose job is to find out whether people are obeying official regulations, but not in this context – we know he is there to catch a spy, not to audit the police station.

14 **A**

We can tell that Hillfield is annoyed that Millom does not respond immediately and is annoyed that he is not ready for action. From this, we can infer that B is correct. The word 'dither' means hesitate. Hillfield is obviously a man of action ('We've got a spy to catch'); therefore, it is hesitation that would annoy him.

15 **E**

In this context, the word 'copper' is used as an informal term for a police officer: 'he guessed the stranger was another copper.'

Verbal Reasoning

Practice Section

1 **despise** and **hate**

2 **runner** and **jogger**

3 **black** and **white** (The others are colours of the rainbow.)

4 **cabinet** and **table** (The others are designed for sitting on.)

Test

1 **graphic** and **vivid**

Both words are adjectives that can mean clear and detailed.

2 **jovial** and **genial**

Both words are adjectives meaning cheerful.

3 **melee** and **fracas**

Both words are nouns meaning a noisy fight.

4 **infamy** and **notoriety**

Both words are nouns meaning well-known for something bad.

5 **staunch** and **dependable**

Both words are adjectives meaning reliable or loyal.

6 **proximity** and **closeness**

Both words are nouns meaning nearness (to a place or person).

7 **inherent** and **intrinsic**

Both words are adjectives meaning an essential or inseparable part of something.

8 **zealot** and **fanatic**

Both words are nouns that describe someone with extreme beliefs or opinions.

9 **departure** and **left**

The other words are all first-person, singular, present tense verbs meaning to leave.

10 **crab** and **spider**

The other words are all animals with four legs (quadrupeds).

11 **boulder** and **stone**

The other words are all specific types of rock.

12 **water** and **butter**

The other words are all sticky, sweet liquids produced by processing sugar.

13 **prize** and **plaster**

The other words are all nouns referring to the performance of a piece of music or a dramatic role.

14 **flowers** and **colour**

The other words are all anagrams (made from exactly the same letters).

15 **North** and **Mediterranean**

The others are all oceans (rather than seas).

16 **shall** and **towel**

The other words all rhyme with each other (they have the same vowel sound).

17 **C**

13 minutes before the film begins is 14:42.

Mary's watch will say 14:38 at this time, i.e. at the time when her friend arrives.

Mary has 12 minutes left to wait for her friend to arrive, so her watch must say 14:26.

18 **D**

5 oranges balance 1 pineapple so 15 oranges balance 3 pineapples.

3 pineapples balance 2 melons so 15 oranges also balance 2 melons.

From this, 30 oranges balance 4 melons.

Mathematics

Test

1 **A**

Area of full circle = $3 \times 5^2 = 3 \times 25 = 75\,cm^2$

Area of semicircle = $75 \div 2 = 37.5\,cm^2$

Area of rectangle = $10 \times 5 = 50\,cm^2$

Shaded region = $50 - 37.5 = 12.5\,cm^2$

[Perimeter, Area and Volume]

2 **C**

4A + 11B costs the same as 8A + 4B.

Look at the difference between these two sums.

4 apples must cost the same as 7 bananas.

So, you can replace the 4 apples in the first sum with 7 bananas:

11 + 7 = 18 bananas

[Algebra]

3 **C**

Imagine the clock shows 03:00.

The hands would be at 12 and 3 forming a right angle, i.e. 90°.

This is a difference of three hours, so each hour is
90° ÷ 3 = 30° degrees.

At twenty past 5 the minute hand points to the 5 and the hour hand is one-third of the way between 5 and 6 (as 20 minutes is one-third of an hour).

So, the angle between the hand is:

30° + (30° ÷ 3) = 30° + 10° = 40°

[Angles and Degrees]

4 **D**

There are 7 hexagons and 6 triangles.

Each hexagon is equivalent to six equilateral triangles.

So, there are (7 × 6) + 6 = 48 triangles in total.

6 out of 48 triangles are shaded.

$\frac{6}{48} = \frac{1}{8}$

[Fractions, Decimals and Percentages; Properties of Shapes]

5 **E**

10% empty means 90% full.

So, the difference between being 90% full and 10% full is 48 passengers.

90 – 10 = 80%

So, 80% = 48 passengers

10% = 48 ÷ 8 = 6 passengers

100% = 6 × 10 = 60 passengers

[Fractions, Decimals and Percentages]

6 **D**

12 × 18 = 216

216 is a three-digit number and a cube (216 = 6 × 6 × 6).

[Special Numbers; Factors and Multiples]

7 **D**

2 builders = 5 hours = 1 wall

Increasing the number of walls will increase the number of builders by the same factor:

6 builders = 5 hours = 3 walls

Decreasing the amount of time will increase the number of builders by the inverse.

To go from 5 to 2, you divide by 5 and multiply by 2.

The inverse of this is multiplying by 5 and dividing by 2.

15 builders = 2 hours = 3 walls

[Ratio and Proportion]

8 **C**

You can use algebra or trial and error, but here is another method:

Firstly, if the ratio is 3:4, the number of sweets in the bag must be a multiple of 7 (3 + 4). So, you can rule out Options A and B.

After Jack eats 6 sweets, the number of sweets becomes a multiple of 3 (1 + 2).

So, the starting number is a multiple of 7 that is 6 more than a multiple of 3.

As 6 is a multiple of 3, the starting number must be a multiple of 7 *and* 3. Only Option C matches this.

Check: 42 = 18 red + 24 green

After Jack eats 6, there is 12 red + 24 green, which simplifies to 1:2.

[Ratio and Proportion; Factors and Multiples]

9 **B**

A is false – Walter's plant is taller at Week 4.

B is true – the recorded height of Walter's plant did not change between Weeks 2 and 3 and between Weeks 4 and 5.

C is false – Walter's plant grew faster between Weeks 3 and 4 (shown by a steeper line).

D might be true – but it cannot be disproved or proven using the given information.

E is false – Walter's total change (11.6 – 3.6 = 8) was less than Irina's total (15 – 5 = 10).

[Statistics]

10 **C**

Be careful to put each digit in the correct place value position.

[Estimation and Place Value]

11 **C**

Look at each option and assess its likelihood.

For reference, 1 litre is a large bottle of water.

[Measurement]

12 **C**

36.5° – (-6°) = 36.5° + 6° = 42.5°

[Measurement]

13 **C**

You only need to look at the squares in the pattern, i.e. Shape 1, Shape 3, Shape 5, …

The number of dots in each pattern is a square number, i.e.
Shape 1 = 1^2, Shape 3 = 3^2, Shape 5 = 5^2, …

So, Shape 7 will have $7^2 = 49$ dots.

[Sequences]

14 **D**

$4 \times 7 \times 6 \times 50\,g = 8400\,g = 8.4\,kg$

[Operations; Measurement]

15 **B**

If the probability of rolling 5 or above is 75%, then the probability of rolling 4 or less is 25%.

If there's a 25% chance of getting one of 4 results (1, 2, 3, 4), then there's a 100% (4 × 25%) chance of getting one of 16 (4 × 4) results.

So, there must be 16 faces on the dice.

[Probability]

Non-Verbal Reasoning

Subsection 1

Practice Section

1 **A** (The two rows are reflections of each other.)

2 **B** (In each row, the shape gains two sides and changes to black.)

Test

1 **C**

The shapes are the same in each column, and the shading is the same in each row.

2 **A**

From left to right in each row, the shape rotates 90° anticlockwise each time. The shading is the same in each column.

3 **C**

There are three different shapes in Latin square format, i.e. each shape appears one in each row and column. The size of the shapes is the same in each row.

4 **B**

The small shapes in the centre box enlarge and move into the opposite box in the matrix. Grey shading changes to white and vice versa.

5 **A**

The large shapes are in a Latin square format, and the line style of the shapes is in an independent Latin square format.

6 **D**

The large arrows are the same in each column. The small arrows are in Latin square format.

7 **B**

In each row, the shapes in the first and second columns flip to the opposite side of the box and join together in the third column. The two shapes swap shading.

8 **E**

The upper line shape is in Latin square format, and the line style is the same in each row. The large shape is the same in each column, and the shading is in Latin square format.

Non-Verbal Reasoning

Subsection 2

Practice Section

1 **C** (The two shapes join together.)

2 **E** (The small black shape moves inside the large white shape.)

Test

1 **B**

The figure flips vertically and striped shading is added.

2 **C**

The two shapes in the figure swap sizes and positions.

3 **E**

The figure rotates 180° and the two shapes swap shading.

4 **B**

The large shape rotates 135° anticlockwise. The small shape moves inside it, and the two shapes swap shading.

5 **D**

The positions of the small crosses determine the corners of the new shape. The direction of the crosses determines the fill of the new shape.

6 **C**

The small cross in the bottom right of the figure determines how the large shape is divided into four. The shading in the square in the bottom left of the figure determines which half of the large shape is shaded.

7 **E**

The small shape on the left enlarges and takes the line style of the horizontal line above it. The small shape in the middle flips vertically, enlarges and moves into the new large shape, taking its shading from the small square on the right.

8 **A**

The large shape rotates 90° and takes its line style from the vertical line in its centre. The two small shapes flip vertically, swap shading and move inside the large shape.

Spatial Reasoning

Practice Section

1 **E**

2 **B**

Test

1 **B**

2 **E**

3 **C**

4 **D**

Option D needs to be rotated 90° anticlockwise to complete the target shape.

5 **A**

6 **E**

Option E needs to be rotated 90° clockwise to complete the target shape.

7 **A**

Option A needs to be rotated 90° anticlockwise to complete the target shape.

8 **E**

Option E needs to be rotated 90° anticlockwise to complete the target shape.