BROAD HORIZON
— TUITION CENTRE —

Mock Exam 43

ANSWERS

Year 5
GL Practice Papers

Broad Horizon Tuition

Please don't hesitate to contact us at
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BROAD HORIZON
TUITION CENTRE

11+ Birmingham and Warwickshire

Practice Test 8

Paper A

Answers

BROAD HORIZON
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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 **D**

If you *stake a claim* to something, you assert your right to something, which makes the gulls sound *assertive*.

2 **C**

We know there are six pairs of herring gulls '*on the roof opposite*'. Ansell then states: 'there are more pairs that I can't see on my own roof.' The word 'pairs' is plural, telling us there must be *at least* two pairs of herring gulls on Ansell's roof. Two pairs would be four herring gulls, making the answer C. Ansell is not saying that there are more pairs on his own roof than on the roof opposite; he is saying there are *additional* pairs on his roof, but he does not know how many.

3 **E**

First light is when you first see light in the sky in the morning. This is long before the sun is high in the sky.

4 **C**

We have '**a** conversational quickfire cackling'. The determiner 'a' and the words 'conversational' and 'quickfire', which are adjectives (meaning *chatty* and *rapid*), make 'cackling' a noun in this context.

5 E

The word 'sonorous' means *having a deep, pleasant sound.* There is nothing to suggest that the noise made by the gulls was deep and pleasant. A cackle is a *loud*, *unpleasant* sound made by a chicken or *loud*, *high* laughter. Yodelling is singing in which you rapidly alternate between a normal voice and a *high* voice. It would be perfectly reasonable to find these noises *irritating* and *unpleasant*. We know yodelling involves using a *high pitch*. The noise woke Ansell up to begin with, so we can infer it must have been loud (*clamorous*), and cackling is a loud noise.

6 B

There is no simile in the second paragraph (no comparison using *like* or *as*). We have repetition: '**more** and **more** for granted' (line 12). We have a rhetorical question: 'Why don't I do this more often?' (lines 20–21). We have sibilance (repetition of soft *s* sounds): 'sight of the sea so' (line 9), and we have onomatopoeia (when a word sounds like the noise it refers to): 'crunch' (line 19).

7 A

'Walking to the beach takes about five minutes' (line 10). It takes about ten minutes to walk a kilometre, so it would take about five minutes to walk half a kilometre. Option A, 400 metres, is the answer nearest to half a kilometre (500 metres). You should realise it would take a lot less than five minutes to walk 100 metres and more than five minutes to walk half a mile, a mile or a kilometre.

8 C

Three types of birds are mentioned: the herring gull, gannet and phalarope. You should be able to work out that gannets and phalaropes are birds because they were 'bobbing in the waves' (line 18). This means they were moving up and down gently on top of the water. Fish and mammals in the sea would be swimming or floating, rather than bobbing.

9 C

A mermaid's purse is a tough horny envelope containing fertilised eggs, produced by the female of certain sharks and skates. You should be able to work this out logically. A purse is for putting things in, and Option C is the answer choice that is about something being inside something else which makes the most sense. Fertilised eggs in a case are more like coins in a purse than a sea snail in a shell.

10 A

The word 'garish' means *lurid*, *bright*, etc.

11 C

'some people persist in putting out food for them in spite of, *or perhaps because of*, the letters from the council asking them to desist' (lines 35–36). This is telling us that Ansell thought some people put out food for the gulls *because* they got official letters telling them not to (i.e. they were doing it to oppose authority).

12 D

'Personally I don't mind the gulls … They probably belong here more than I do' (lines 37–38). This shows a tolerant attitude (an ability to deal with something that can be unpleasant or annoying). Ansell does not let their noise get to him or seem bothered that they rip open bin bags.

13 E

The word that best describes Ansell is *adventurous* because his desire for adventure has had a huge impact on his life. He has been to 'the best part of a hundred countries' (line 42). There is nothing to suggest he is *reckless* (heedless of danger), as there is no suggestion that he was ill-equipped for his travels. There is no reason to think he is particularly *hospitable*, and there is nothing to make us think he was *inconsiderate* or *aimless*.

14 D

We know Ansell is living in Brighton: 'I find it hard to believe that I have been in Brighton for so long' (line 39). We know the Isle of Jura is not *too* far from Brighton: 'somewhere closer to home: the Isle of Jura' (line 44–46). This makes Option D the logical answer.

15 C

It is a metaphor because we are not supposed to take the words literally. Ansell did not literally leave a piece of himself on the Isle of Jura (e.g. he did not leave behind a toe or finger!). The phrase demonstrates that Jura means a lot to him, and he will never forget the place.

Verbal Reasoning

Practice Section

1 **w** (bow, wash, claw, wind)

2 **h** (lash, heat, much, hand)

3 **ash** (a type of tree / the remains of a fire)

4 **blue** (to feel depressed / a type of colour)

Test

1 **t**

The letter **t** fits in both sets of brackets to make *feat*, *tame*, *dart* and *tear*.

2 **l**

The letter **l** fits in both sets of brackets to make *tool*, *lift*, *fall* and *lime*.

3 **e**

The letter **e** fits in both sets of brackets to make *canoe*, *epic*, *bare* and *earth*.

4 **s**

The letter **s** fits in both sets of brackets to make *pass*, *span*, *pins* and *sac*.

5 **m**

The letter **m** fits in both sets of brackets to make *from*, *mile*, *calm* and *mull*.

6 **r**

The letter **r** fits in both sets of brackets to make *near*, *road*, *pier* and *round*.

7 **w**

The letter **w** fits in both sets of brackets to make *blow*, *wear*, *stew* and *worth*.

8 **y**

The letter **y** fits in both sets of brackets to make *easy*, *yard*, *buy* and *your*.

9 **band**

The words *hoop* and *ring* can both mean a circle.

The words *group* and *troupe* can both mean a group of performers.

Therefore, *band* fits equally well with both pairs of word.

10 **board**

The words *embark* and *enter* can both mean to get on something, such as a ship or plane.

The words *plank* and *beam* can both refer to a long, thick piece of wood.

Therefore, *board* fits equally well with both pairs of words.

11 **brief**

The nouns *instructions* and *remit* can both refer to a set of guidelines.

The adjectives *short* and *fleeting* can both describe something that only lasts for a small amount of time.

Therefore, *brief* fits equally well with both pairs of words.

12 broke

The adjectives *penniless* and *poor* both mean to have no money.

The verbs (past tense) *smashed* and *shattered* both mean that something was broken or destroyed.

Therefore, *broke* fits equally well with both pairs of words.

13 light

The adjectives *flimsy* and *delicate* both mean insubstantial.

The adjectives *bright* and *sunny* can both refer to something (e.g. a room) with lots of natural light.

Therefore, *light* fits equally well with both pairs of words.

14 bound

The verbs *leap* and *jump* can both mean to spring or bounce.

The adjectives *certain* and *sure* can both mean something will definitely happen.

Therefore, *bound* fits equally well with both pairs of words.

15 beam

The nouns *joist* and *support* can both refer to a long, thick bar used for structural support in a building.

The verbs *grin* and *smile* both mean to use your mouth to show you are happy or pleased.

Therefore, *beam* fits equally well with both pairs of words.

16 spare

The verbs *pardon* and *excuse* can both mean to release or have mercy on someone.

The adjectives *extra* and *additional* can both mean to have more than needed.

Therefore, *spare* fits equally well with both pairs of words.

Mathematics

Practice Section

1 **C**

2 **A**

Test

1 **C**

8 × 7 = 56

8 + 7 = 15

56 – 15 = 41

[Operations]

2 **C**

50% first occurs halfway between Jul 19 and Jan 20.

Each interval is 6 months, with half an interval being 3 months.

Counting along, we can see 6 + 6 + 3 = 15 months between 100% and 50%.

[Statistics]

3 **C**

A long notch is 1, so a medium notch is 0.25 and a small notch is 0.125.

[Estimation and Place Value]

4 **C**

CXXI = 121

XI = 11

121 ÷ 11 = 11, i.e. XI

[Estimation and Place Value]

5 **E**

After reflection, Point P will be at (4, 2).

Translating up three units gives (4, 5).

[Position and Direction]

6 **A**

250 ÷ 18 = 13 remainder 16

You cannot buy a fractions of a stamp, so round down.

[Operations; Money]

7 **E**

The number of squares is 1, 5, 13, …

The difference between these numbers is 4, 8, …

The difference appears to increase by 4 squares each time.

You might want to sketch Shape 4 to check this.

So, the sequence is:

Shape 1: 1

Shape 2: 1 + 4 = 5

Shape 3: 5 + 8 = 13

Shape 4: 13 + 12 = 25

Shape 5: 25 + 16 = 41

Shape 6: 41 + 20 = 61

Shape 7: 61 + 24 = 85

Shape 8: 85 + 28 = 113

[Sequences]

8 **D**

Use trial and error.

Two years ago, if Becky was 5 then Samantha would be 15.

So, Becky will be 7 now and Samantha will be 17.

In 23 years, Becky will be 30 and Samantha will be 40.

[Algebra]

9 **A**

The triangle is isosceles, so the two unmarked angles are equal:

(180° – 40°) ÷ 2 = 70°

Angles at a point on a straight line add up to 180°.

So, z = 180° – (80° + 70°) = 180° – 150° = 30°.

[Angles and Degrees]

10 **C**

Remember BODMAS!

$(124 \div 4) \times 3^2$

$= 31 \times 3^2$

$= 31 \times 9$

$= 279$

[BODMAS]

11 **D**

$360 + 45 + 15 = 420\,\text{ml}$

$\frac{2100}{420} = \frac{210}{42} = \frac{30}{6} = 5$

So, Helga needs 5 lots of 15 ml, which is 75 ml of clear syrup.

[Ratio and Proportion]

12 **B**

The area of the fountain is $4.5 \times 2 = 9\,\text{m}^2$

The area of the garden is $6 \times 12 = 72\,\text{m}^2$

$\frac{9}{72} = \frac{1}{8} = 0.125$

$0.125 \times 100 = 12.5\%$

[Perimeter, Area and Volume; Fractions, Decimals and Percentages]

13 **A**

12 000 m ÷ 60 minutes = 200 m per minute

5000 m ÷ 20 minutes = 250 m per minute

That is a difference of 50 metres per minute.

[Speed, Distance and Time]

14 D

In the left region, there will be 1, 4, 6, 8, 12 and 24.

In the middle region, there will be 2 and 3.

Outside the two circles, there will be 9, 10, 14, 15, 16, 18, 20, 21 and 22.

And inside the shaded region, there will be 5, 7, 11, 13, 17, 19 and 23 (i.e. the prime numbers between 1 and 24 that are not factors of 24).

[Special Numbers; Factors and Multiples]

15 B

$4.8 \times 92.3 = 443.02$

[Estimation and Place Value]

Non-Verbal Reasoning

Subsection 1

Practice Section

1 **D** (The other figures have one small shape inside and one outside.)

2 **A** (The other figures are divided into four parts.)

Test

1 **B**

The other figures have exactly half shaded.

2 **D**

The other figures have an outer line that is dashed and an inner line that is solid.

3 **E**

The other figures have an arrow that points to the small shape inside the large shape, with the arrowhead positioned inside the large shape.

4 **C**

The other figures are all made from either seven sides or seven shapes.

5 **E**

In the other figures, the black and white rectangles are positioned at right-angles to each other.

6 **A**

In the other figures, if the black circle overlaps the edge of the large shape then the black part of the lozenge is outside the large shape; and if the black circle appears behind the large shape, then the black part of the lozenge is inside the large shape

7 **C**

In the other figures, the cross fill in the square touches sides of the square not the corners.

8 **D**

In the other figures, the square is positioned at the open end of the large shape and the triangle at the closed end.

Non-Verbal Reasoning

Subsection 2

Practice Section

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

2 **B** (Two sides are added to the shape and it changes to black.)

Test

1 **E**

From left to right in each row, the shape rotates 45° clockwise each time.

2 **C**

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

3 **A**

The shapes are the same in each column. The vertical lines inside the shapes are in a Latin square format – each style appears once in each row and column.

4 **B**

The type of shapes are the same in each column, and the shading of the shapes is the same in each row. The number of shapes is in a Latin square format.

5 **E**

The three types of shapes are in a Latin square format, and the size of the shapes is in an independent Latin square format.

6 **D**

The small shapes are the same in each column, and the large shapes are positioned in a symmetrical pattern across the grid.

7 **C**

The entire matrix forms a pattern.

8 **B**

In each column, the shapes in rows one and two reflect down to the opposite side of the box in the bottom row and the shapes swap shading.

Spatial Reasoning

Practice Section

1 **A**

2 **E**

Test

If one particular shape appears in two or three different views, you should be able to work out how the other shapes relate to it and each other. Think about which shapes are next to each other and which are on opposite sides.

If you struggle to visualise this in your mind, you could try sketching a net of a cube and adding the different shapes to the correct faces.

1 **A**

2 **E**

3 **B**

4 **C**

5 **D**

6 **A**

7 **C**

8 **D**

BROAD HORIZON
— TUITION CENTRE —

Mock Exam 43

11+ Birmingham and Warwickshire

Practice Test 8

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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English

Test

1 **A**

Trepidation is a feeling of anxiety about what might happen. A fool's errand is an activity that has no hope of success. We can infer that the narrator would feel anxious about whether or not her trip would be successful. The fact that she refers to Yukon's inhospitable climate suggests she has concerns. The word *terror* is too strong. She is not *curious* (the dates of travel are 'curiously appropriate'). There is nothing to suggest she is feeling *buoyant* (cheerful) or *elated* (extremely excited).

2 **D**

The word 'climate' refers to the weather, and the word 'inhospitable' means harsh. Therefore, 'inhospitable climates' are harsh weather conditions, which will be challenging.

3 **D**

The previous sentence tells us that Yukon is triangular shaped. The word 'tip' means *point*. This tells us that the land that makes up Yukon forms a point in the north, so the land must be wider in the south than it is in the north. The word 'tip' is not being used to mean landfill. The Beaufort Sea is only at the northern tip of Yukon – it is not surrounding it. The waters of the Beaufort Sea would not be *permanently* frozen, as Yukon is warm in the summer.

4 **B**

An idiom is an expression in which words are not used in their literal sense (the meaning of the expression is different from the individual meanings of each word). 'I was embarking on a fool's errand' does *not* mean 'I was undertaking a job for a fool'. It she was undertaking something that was likely to be unsuccessful.

5 **C**

We know the buses stop in September (when the tourists leave) and start up again in May. This means they run from May to September. We can infer that they start running at the beginning of May and finish running for the winter some time at the beginning of September. This means they run for approximately four months of the year. Whatever the exact dates are in May and September, none of the other answer choices can be true.

6 **A**

In this context, the word 'minus' tell us that the temperature (26 degrees) is *less than zero* – it is modifying the noun, so it is an adjective.

7 **A**

Frost consists of small ice crystals. Gems (precious stones) are known for being sparkly. It is logical that frost would sparkle in the light, and this makes sense of it being referred to as 'gems'. Frost is not *valuable*, *scarce* or *found underground*. The word 'jagged' tells us that the appearance was not *smooth*.

8 **E**

The third paragraph describes the things that the narrator finds wonderful about winter in Yukon: the 'late blue dawns' (the sunrises); the rabbits, foxes and sled dogs (the animals); the colours of the northern lights (the aurora borealis) – 'the milky jade and blood red' of them; and the 'pure, glorious silence' (the peacefulness). The opening line ('But there's another side to winter in this harsh land.') sets this paragraph in contrast to the previous one, which describes the extreme cold, so we can infer that these are aspects she likes compared to the previous aspects that she does not like or finds challenging.

9 **D**

The northern lights are *green* and *red*: 'milky jade and blood red'. The word 'jade' describes a shade of green. We know the days become shorter because the nights grow longer ('As the nights grow longer'). The temperature can be above minus 26 degrees Celsius (this is an average, so the temperature must go above it for it to be an average). A temperature of minus 42 degrees Celsius would not be unusual ('Temperatures dip *regularly* into the minus forties').

10 **B**

A 'gold rush' is a rush to try to find gold in a newly discovered goldfield. The word 'frenzied' tells us people were behaving in an excited and uncontrollable way (frantically).

11 **A**

'Poop' reads the same backwards as it does forwards, so it is a palindrome.

12 A

In January 2006, Saul is 25. If he was born in 1981, he would have to have his birthday in January before the Yukon Quest to be 25 at the time of it. If he was born in 1980, then his birthday could be any time from the end of the Yukon Quest to the end of the year (which would be about an eleven-month period). It is more likely that his birthday falls in an eleven-month period than it is that his birthday is in January; therefore, he is more likely to have been born in 1980 than 1981.

13 C

We know this statement is true because Polly recognised Frank from his website photographs. This tells us that she had not seen him in person before.

14 A

Saul is 'running a team' in a dogsledding race (the Yukon Quest), so it is a team of dogs that he will be running.

15 B

We are told they are 'howling' (*noisy*). *Exuberant* means energetic and cheerful. They must be energetic to be in a 1600-kilometre race, and we have the word 'capering' (meaning 'skipping about in a lively way').

Verbal Reasoning

Practice Section

1 **3782** (The position of the letter H in HOLD, MASH and SHED matches the position of the number 3 in the codes.)

2 **HOME**

3 **9** (6 + 3 = 9)

4 **2** (6 ÷ 3 = 2)

Test

1 **7324**

RENT = 4567, HUNG = 8261, TOUR = 7324, NOTE = 6375

2 **7856**

3 **THONG**

4 **REGENT**

5 **5318**

CONE = 1258, WITH = 4376, TOWN = 7245, NICE = 5318

6 **4857**

7 **THIN**

8 **72531**

9 **5**

Let (A [B] C) represent the numbers in each set.

A ÷ C = B

So, 75 ÷ 15 = 5

10 **49**

A – C = B

So, 58 – 9 = 49

11 **36**

$(A + C)^2 = B$

So, $(2 + 4)^2 = 6^2 = 36$

12 **50**

A × C × 10 = B

So, 1 × 5 × 10 = 50

13 **8**

(A – C) ÷ C = B

So, (72 – 8) ÷ 8 = 64 – 8 = 8

14 **30**

(A + C) × 2 = B

So, (7 + 8) × 2 = 15 × 2 = 30

15 **19**

(A + C) × 2 – C = B

So, (7 + 5) × 2 – 5 = 12 × 2 – 5 = 24 – 5 = 19

16 **14**

(A + C) ÷ 2 = B

So, (21 + 7) ÷ 2 = 28 ÷ 2 = 14

17 **A**

Dev's watch says 14:03.

David's watch says 14:09.

Delroy's watch says 13:57.

Halfway between 13:57 and 14:09 is 14:03.

18 **C**

Tina is the only person who used stickers and typed the message.

	Colour	**Decoration**	**Inside**
Tara	Red	Stickers	Pencil
Tiara	Red	Glitter	Pencil
Tina	Green	Stickers	Type
Tom	Yellow	Paint	Type
Tim	Yellow	Stickers	Pen

Mathematics

Test

1 **E**

The number is in the hundred thousands, so it will have six digits.

[Estimation and Place Value]

2 **E**

The large triangle is divided into four medium-sized triangles.

Each medium-sized triangle can then be divided into four small triangles.

That means the large triangle can be divided into
$4 \times 4 = 16$ small triangles.

One of these is shaded, so $\frac{1}{16}$ of the whole shape is shaded.

[Fractions, Decimals and Percentages]

3 **C**

Total number of students = 24 + 12 + 30 + 10 + 16 + 8 = 100

24 students chose dogs as their favourites.

24 out of 100 is 24%.

[Statistics; Fractions, Decimals and Percentages]

4 **D**

HCF = largest number that goes into both

LCM = smallest number that both go into

Test for each pair – only 15 and 50 work.

[Factors and Multiples]

5 **B**

When someone is still, their distance does not increase with time.

This is shown by a horizontal line. So, **D** must be **Paul**.

Line **E** does not return to the starting position, so must be **Nick**.

Line **A** got back to the starting position first, so is **Tom**.

Line **C** is the only remaining line with a steeper gradient on the return journey, so must be **Caitlyn**.

Hint: The steepness of the line on a distance–time graph represents the speed; a steeper line = faster.

Line **B** is the only remaining line, so that must be **Phil**.

[Statistics]

6 **E**

144 ÷ 9 = 16

12 × 12 = 144

[Factors and Multiples]

7 **C**

The clock shows 10.45

Subtract 20 minutes for the interval → 10.25

Subtract 15 min → 10.10

Subtract 2 hours → 8.10

[Measurement]

8 **B**

42 km ÷ 6 km = 7

7 × 30 minutes = 3 hours 30 minutes (Raya)

42 km ÷ 7 km = 6

6 × 30 minutes = 3 hours (Winston)

So, the difference between Winston and Raya's times is 30 minutes.

[Speed, Distance and Time]

9 **D**

The tally shows 28 black, 25 white, 12 red, 15 blue and 1 yellow, which is 81 cars altogether.

Therefore, only statement D is true.

[Statistics]

10 **B**

Top interior angle = 360° – 260° = 100°

Hint: This diagram is not drawn to scale, so you must use the numbers and not your eyes to work out the details of the angles. For example, the top angle looks acute but the value is obtuse.

The remaining angles must sum to 80°, as the sum of angles in a triangle is 180°.

$3x + x = 4x$

$4x = 80$

$x = 80 \div 4 = 20$

[Angles and Degrees]

11 C

Let Lou's price be x.

Emily's price will be $x + 2$

Emily sells 30 at this price: $30(x + 2)$

Lou sells 40 at hers: $40x$

Adding these together gives the total sales:

$30(x + 2) + 40x = 200$

$30x + 60 + 40x = 200$

$70x + 60 = 200$

$70x = 200 - 60$

$70x = 140$

$x = 140 \div 70 = 2$

So, Lou's price was £2 per badge.

[Algebra]

12 A

Look for the smallest value, as this will limit the number he can make.

In this case, it is the bananas:

1 kg of butter will make 7.

1 kg of caster sugar will make 5.

1.5 kg of flour will make 5.

1.5 kg of icing sugar will make 25.

8 bananas will make 4.

[Ratio and Proportion]

13 **C**

225 = 15 × 15, so the square has sides of 15 cm.

Perimeter = 15 cm × 4 = 60 cm

For the rectangle to have the same perimeter, one width and one length must add up to half of this value, i.e. 30 cm.

[Perimeter, Area and Volume]

14 **D**

3 × 3 × 3 × 3 = 9 × 9 = 81

[Special Numbers]

15 **D**

The range is given by the largest value minus the smallest value.

First eliminate the incorrect ranges (A, B and E).

Then look for the set that totals 5 × 7 = 35 (D).

[Statistics]

Non-Verbal Reasoning

Subsection 1

Practice Section

1 **B** (The figure rotates 90° clockwise; the square follows a repeating pattern of shading; and the number of short bold lines is 3, 2, 1, 2, 3, …)

2 **A** (The black triangle rotates 90° clockwise; the black dot disappears from the final hexagon; and the white hexagon disappears in the next box.)

Test

1 **E**

The outline of the circle follows a repeating pattern: double, bold, plain, and repeat. The arrow rotates 135° clockwise each time, and the arrowhead alternates between white and black.

2 **C**

The figure flips vertically each time. The fill of the triangle follows a repeating pattern: stripes, grey, white, and repeat. One more small black circle is added each time.

3 **A**

The large shape rotates 45° clockwise each time. The black circle rotates to the next corner in an anticlockwise direction. The shading inside the circle follows a repeating pattern: grey, crossed, white, and repeat.

4 **D**

The figure flips vertically each time, and another 'lollipop' is added, alternating between black and white.

5 **D**

The three large shapes move one place clockwise each time, and the small shapes move one place anticlockwise. The shading goes from the small shape to the large shape in each position, working around the figure in a clockwise direction.

6 **E**

The line rotates 90° each time. The white circle moves half a side clockwise around the box and the black circle rotates to the next corner in an anticlockwise direction.

7 **C**

The L-shape rotates 90° anticlockwise each time, and its line style follows a repeating pattern: bold, double, plain, and repeat. The string of circles and central square rotate 90° clockwise.

8 **B**

The large shape follows a repeating pattern: square, hexagon, octagon, and repeat. The shading of the shape alternates between diagonal stripes and grey. The white circle moves from the top left of the box to the centre to the bottom right, and then back again.

Non-Verbal Reasoning

Subsection 2

Practice Section

1 **A** (A = black and E = rectangle)

2 **D** (M = odd number of squares and N = white)

Test

1 **A**

The first letter codes for the orientation of the figure; the second letter codes for the shading of the large triangle; and the third letter codes for the small shape.

2 **C**

The first letter codes for the number of small squares; the second letter codes for the large shape; and the third letter codes for the shading of the large shape.

3 **E**

The first letter codes for the type of arrowhead; the second letter codes for the small shape at the opposite end to the arrowhead; and the third letter codes for the direction of the arrow.

4 **B**

The first letter codes for the orientation of the figure; the second letter codes for the line style of the L-shape; and the third letter codes for the type of small shape.

5 **A**

The first letter codes for the orientation of the figure; the second letter codes for the position of the circle; and the third letter codes for the position of the diamond.

6 **D**

The first letter codes for the number of chevrons on the right of the circle; the second letter codes for the number of chevrons on the left of the circle; and the third letter codes for the shading of the circle.

7 **C**

The first letter codes for the position of the thick vertical line inside the rectangle; the second letter codes for the number of horizontal lines to the right of the vertical line; and the third letter codes for the number of horizontal lines to the left of the vertical line.

8 **E**

The first letter codes for the shape on the right of the figure; the second letter codes for the line style of the shape on the right of the figure; and the third letter codes for the larger shape on the left of the figure.

Spatial Reasoning

Practice Section

1 **E**

2 **B**

Test

1 **D**

2 **C**

3 **E**

4 **A**

5 **B**

Figure B must be rotated 90° clockwise to complete the target shape.

6 **D**

Figure D must be rotated 90° anticlockwise to complete the test shape.

7 **C**

Figure C must be rotated 90° clockwise to complete the test shape.

8 **B**

Figure B must be rotated 90° clockwise to complete the test shape.