



BROAD HORIZON
— T U I T I O N —

11+ Tuition

Year 4

Mock Exam 01

Week 49

ANSWERS



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.

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.

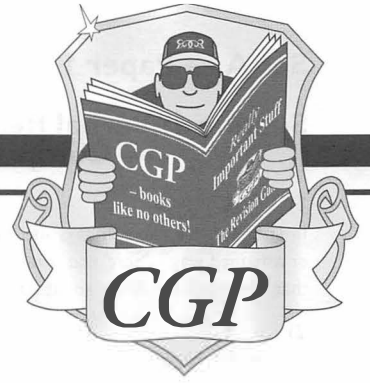
Again, it might be a good idea to collect in all the answering sheets once you're done marking, and just have a quick flick through the pages.

7) Equipment

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

Pencils and erasers only.

CGP



11+ Practice Papers

For the **CEM** test



Answer Book

Ages
9-10

Set A — Paper 1

Section 1: Verbal Reasoning — Comprehension 1

1) C

In lines 3-4, the narrator says she "never minded being poor in any sore or ashamed way." 'Sore' can mean 'angry' or 'resentful', so this means that she didn't feel bitter about having to live in poverty.

2) C

In lines 4-5, the narrator says that she "thought it would be nice to have lots of other little girls to play with" if she went to school. This suggests that she wanted to make friends with them.

3) A

When the narrator's mother is talking to her about school, she says "I don't think you would like it as much as you think you would" (line 7).

4) B

In line 14, the narrator says that the shops in her childhood "were not nearly as pretty as shops are nowadays". This suggests that the shops were less appealing to look at.

5) D

A "relic" is something that has been preserved from the past. The narrator goes on to say that these relics are an "arm-chair" and a "chest of drawers" from her old house (line 22).

6) D

In line 27, the narrator says that "it was not because the furniture was so good" that she and her brother liked going to Cranston's. She then goes on to explain that she "grew very fond" of Cranston's carved lions and "was always asking" her mother to take her back (lines 36-37). She adds that her brother "liked them too" (line 38).

7) B

The narrator describes how "the first time" she saw the carved lions, she "was really frightened" of them (lines 30-31) and did not feel "at all sure that they would not suddenly spring forward" and catch her (lines 33-34) — 'uneasy' is the only option that describes this feeling of fear and uncertainty.

8) C

In lines 45-47, the narrator explains that her mother's godmother "seemed to be always ordering something" from Cranston and that her mother would go to the shop "to explain to Cranston about the things" her godmother wanted.

9) A

The narrator says that Cranston had a "pair" of lions, which had been carved out of "wood" that was "very dark, almost black" in colour (lines 29-30). However, the weight of the lions is not mentioned.

10) B

'to make a great show of' means 'to do something in an obvious way to make a point', which suggests that Berridge wanted people to watch him scolding the workers.

11) B

Lines 55-56 state that the carved lions first "belonged to" Cranston's "grandfather" before they belonged to his "father". Cranston didn't pay any money for the lions because he inherited them.

12) C

"principal" means 'most important' or 'main'.

13) C

'first-rate' means 'of the highest quality'.

14) B

"stout" means 'plump' or 'overweight'.

15) B

If someone alludes to something, it means that they mention or refer to something in an indirect way.

Section 2: Verbal Reasoning — Comprehension 2

1) C

Lines 3-4 state that the first underground train line was opened in 1863. However, trains didn't cross under the River Thames until 1869 (line 7), so the first underground train journey can't have been under the River Thames.

2) C

Lines 10-11 state that the Thames Tunnel opened in "1843" and was "bought by the East London Railway Company in 1865." This means that it was open for 22 years before it was bought.

3) B

Line 5 states that the Metropolitan Railway was "around four miles" long, and line 9 states that the Thames Tunnel was "less than half a mile long", so it's true that the Metropolitan Railway was longer than the Thames Tunnel.

4) A

Lines 10-11 state that the Thames Tunnel wasn't sold to the East London Railway Company until 1865, so trains wouldn't have been able to pass through in 1860. However, it was open as a "foot tunnel" (line 9) at this time, so pedestrians could walk through.

5) B

Lines 12-13 state that the Budapest Metro opened in "1896" and "used electricity to power its trains". Lines 13-14 state that this method "had first been used to power underground trains in London six years earlier", which means London started operating electric underground trains in 1890.

6) D

By the end of the 1800s, at least three cities had some form of underground rail travel — London since 1863 (line 3), Budapest since 1896 (line 12) and Glasgow since 1896 (line 12).

7) B

Lines 21-22 state that "around 30% of passengers take longer journeys than they need to" because the Tube map "is not to scale." This means that the map doesn't give an accurate geographical representation, and because the distances aren't shown accurately, people can't judge the best route to take.

8) C

Lines 17-19 state that "a range of merchandise" branded with the London Underground's "famous circular logo" helps "to provide extra income for London's transport services."

9) C

Lines 24-25 state that "some stations were used as air-raid shelters". This means that people used the stations to shelter from bombs.

10) A

Line 29 states that the two longest rail networks in the world are in Shanghai and Beijing. There is no mention of which is the longest and which is the second longest, so all the text tells you is that the second longest must be in China.

Section 3: Verbal Reasoning — Synonyms

1) irritate

Both words mean 'to bother'.

2) tough

Both words mean 'difficult'.

3) **recommend**

Both words mean 'to suggest something'.

4) **assist**

Both words mean 'to provide aid'.

5) **ordinary**

Both words mean 'common'.

6) **cemetery**

Both words mean 'burial ground'.

7) **admit**

Both words mean 'to tell the truth'.

8) **attempt**

Both words mean 'to give something a go'.

9) **sudden**

Both words mean 'without warning'.

10) **outraged**

Both words mean 'cross'.

11) **achieve**

Both words mean 'to succeed in doing something'.

12) **build**

Both words mean 'to construct'.

13) **difficulty**

Both words mean 'hardship'.

14) **hideous**

Both words mean 'horrible-looking'.

15) **vehicle**

Both words mean 'a machine used for transport'.

16) **damage**

Both words mean 'to harm'.

17) **deceive**

Both words mean 'to mislead'.

18) **startle**

Both words mean 'to surprise'.

19) **cautious**

Both words mean 'wary'.

20) **reliable**

Both words mean 'dependable'.

Section 4: Verbal Reasoning — Multiple Meanings

1) **light**

'light' can mean 'bright' or 'a source of illumination'.

2) **trainer**

'trainer' can mean 'a type of footwear' or 'someone who teaches'.

3) **join**

'join' can mean 'to become a member of a group' or 'to bring things together'.

4) **pack**

'pack' can mean 'to fill something' or 'a group of things'.

5) **bit**

'bit' can mean 'a small portion' or 'having used your teeth to cut something'.

6) **last**

'last' can mean 'at the end' or 'to continue to exist'.

7) **position**

'position' can mean 'the way someone stands' or 'the location of something'.

8) **just**

'just' can mean 'morally right' or 'by a fine margin'.

9) **great**

'great' can mean 'really good' or 'really big'.

10) **open**

'open' can mean 'candid' or 'to allow access to something'.

11) **guide**

'guide' can mean 'someone who teaches' or 'to show the way'.

12) **show**

'show' can mean 'to present something' or 'an entertainment production'.

Section 5: Verbal Reasoning — Cloze

1) **Located**

'Located' in Siberia, a region found in the east of Russia'

2) **by**

'the largest freshwater lake in the world **by** volume.'

3) **Known**

'Known as the 'Pearl of Siberia''

4) **renowned**

'the lake is **renowned** for its breathtaking views'

5) **named**

'and was **named** a UNESCO World Heritage Site in 1996.'

6) **possible**

'it is sometimes **possible** to see the bottom of the lake'

7) **even**

'possible to see the bottom of the lake, **even** at great depths.'

8) **found**

'plants and animals can be **found** in the lake'

9) **unique**

'most of which are **unique** to the area.'

10) **threatened**

'this wildlife has become **threatened** by human factors'

11) **forced**

'the government was **forced** to ban the fishing of omul'

12) **native**

'a type of fish **native** only to Baikal'

13) **suffered**

'Much of the wildlife has **suffered** from algal blooms'

14) **thought**

'suffered from algal blooms, **thought** to be caused by pollution'

15) **surface**

'the **surface** of Lake Baikal freezes over.'

16) **remain**

'The ice **remains** on the lake for around five months'

17) **melting**

'before **melting** again around May or June.'

18) **thick**

'The ice on the lake can be over a metre **thick**'

Section 6: Numerical Reasoning

1) 3 tens

The 3 is two places to the left of the decimal point. This is the tens column.

2) 12 cm³

There are 12 cubes in the shape and each has a volume of 1 cm³, so the shape has a volume of 12 cm³.

3) 41 cm

4.1 cm is about the size of a little finger, so 4.1 mm and 4.1 cm are too short for a hen. 0.41 km and 41 m are both much taller than a person, so are too tall for a hen. 41 cm is below the knee height of an average adult, so is the best estimate for a hen's height.

4) $\frac{1}{2}$

There are 10 hexagons in the diagram and 5 of them are shaded. So $\frac{5}{10} = \frac{1}{2}$ of the honeycomb is shaded (divide the numerator and denominator by 5 to simplify the fraction).

5) 60

$7 \times 6 = 42$. 420 is 10 times bigger than 42, so you need to multiply 7 by $6 \times 10 = 60$ to get 420.

6) 32

Mike and Lucas have $72 + 46 = 118$ football stickers. So Nadya must have $150 - 118 = 32$ football stickers.

7) 7

$25 - 19 = 6$ and $19 - 13 = 6$, so each term is increasing by 6. So the number that goes in the box must be $1 + 6 = 7$.

8) 132 cm²

The width of the front of the card will measure $22 \div 2 = 11$ cm, and the height of the card is 12 cm.

Area of a rectangle = length \times width
 $= 12 \text{ cm} \times 11 \text{ cm}$
 $= 132 \text{ cm}^2$

9) 60%

Irregular polygons have sides that aren't equal, or angles that aren't equal, or both. So the 1st, 3rd and 5th shapes are irregular, meaning $\frac{3}{5}$ of the shapes are irregular. $\frac{1}{5} = 20\%$, so $\frac{3}{5} = 3 \times 20\% = 60\%$.

10) 5.9

To round to the nearest tenth, look at the column to the right of the tenths column. There are 4 hundredths, which is less than 5, so round down to 5.9.

11) $\frac{4}{5}$

The denominators of the fractions are all factors of 15, so write all the fractions with a denominator of 15 to compare them.

$\frac{2}{3} = \frac{10}{15}$ (multiplying top and bottom by 5).

$\frac{4}{5} = \frac{12}{15}$ (multiplying top and bottom by 3).

The other three fractions are $\frac{8}{15}$, $\frac{9}{15}$ and $\frac{11}{15}$.

So $\frac{12}{15} = \frac{4}{5}$ is the largest fraction.

12) 110°

The angle looks bigger than a right angle, so is not 80° or 90°. The angle looks smaller than the angle of a straight line (180°), so is not 250°. The angle looks closer to 90° than it does to 180°, so must be 110° and not 170°.

13) £6.95

To find out how much he spent on keyrings, partition £1.40 into £1 and 40p, and multiply each part by 3 separately: $\text{£}1 \times 3 = \text{£}3$, $40\text{p} \times 3 = \text{£}1.20$, so $\text{£}1.40 \times 3 = \text{£}3 + \text{£}1.20 = \text{£}4.20$.

He also bought one pen for £2.75, so in total he spent: $\text{£}4.20 + \text{£}2.75 = \text{£}6.95$.

14) 61

$5^3 = 125$ and $4^3 = 64$, so Bianca's birthday is $125 - 64 = 61$ days sooner than Ashleigh's.

15) 101°

The angles on a straight line add up to 180°. The angles you know add up to $47^\circ + 32^\circ = 79^\circ$, so the missing angle must be $180^\circ - 79^\circ = 101^\circ$.

16) 820 g

The scales show the weight is halfway between 1 kg and 2 kg, so it is 1.5 kg. Change one of the units so both amounts of flour are in g or kg — g are easier to use here. To convert kilograms into grams you multiply by 1000, so 1.5 kg is 1500 g. $1500 \text{ g} - 680 \text{ g} = 820 \text{ g}$.

17) 17.45

$3.49 = 349 \div 100$ and $5 = 50 \div 10$.

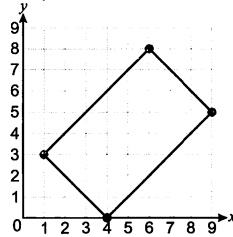
So 3.49×5 is the same as $(349 \times 50) \div 1000$.

You're told that $349 \times 50 = 17\,450$,

so $3.49 \times 5 = 17\,450 \div 1000 = 17.45$.

18) (4, 0)

You count 3 squares to the right and 3 squares down to get from the corner at (6, 8) to the corner at (9, 5). So the coordinates of the rectangle's missing corner must 3 squares to the right and 3 squares down from (1, 3), which is (4, 0).



19) 1774

$M = 1000$, $D = 500$, $C = 100$, $L = 50$, $X = 10$, $V = 5$

and $I = 1$. A smaller numeral before a larger one represents the difference between the two, so $IV = 5 - 1 = 4$.

So the numeral MDCCLXXIV represents the year:

$1000 + 500 + 100 + 100 + 50 + 10 + 10 + 4 = 1774$.

20) $n + 3$

The number of fish Nico caught is expressed as the letter n and Tyler caught 3 more fish than this number of fish. You treat n the same way you would treat a number, so you need to add 3 to it to get $n + 3$.

Set A — Paper 2

Section 1: Verbal Reasoning — Antonyms

1) clever

'stupid' means 'unintelligent', whereas 'clever' means 'intelligent'.

2) farther

'nearer' means 'closer', whereas 'farther' means 'more distant'.

3) tolerable

'unbearable' means 'too much to be endured', whereas 'tolerable' means 'able to be endured'.

4) vague

'detailed' means 'specific', whereas 'vague' means 'unclear'.

5) content

'upset' means 'unhappy', whereas 'content' means 'satisfied'.

6) attack

'defend' means 'try to protect', whereas 'attack' means 'try to harm'.

7) guest

'host' means 'someone who invites people', whereas 'guest' means 'someone who is invited'.

8) general

'specific' means 'exact', whereas 'general' means 'inexact'.

9) liquid

'solid' means 'a firm and stable substance', whereas 'liquid' means 'a substance that flows'.

10) despair

'hope' means 'a feeling of optimism', whereas 'despair' means 'a total lack of optimism'.

11) curious

'uninterested' means 'unconcerned by something', whereas 'curious' means 'eager to find something out'.

12) leisure

'work' means 'a task or job', whereas 'leisure' means 'free time'.

13) gentle

'harsh' means 'rough or cruel', whereas 'gentle' means 'mild or kind'.

14) typical

'uncommon' means 'rare', whereas 'typical' means 'ordinary'.

15) conscious

'unaware' means 'not knowing about something', whereas 'conscious' means 'having knowledge about something'.

16) inconsiderate

'thoughtful' means 'caring', whereas 'inconsiderate' means 'insensitive'.

Section 2: Numerical Reasoning**1 a) D**

She saw more blackbirds ($6 + 8 = 14$) than chaffinches ($8 + 4 = 12$), so option A is false. She saw more starlings (17) than sparrows (15) on Sunday, so option B is false. She saw 3 dunnocks on Saturday, which is an odd number, so option C is false. She saw $4 + 2 = 6$ robins and $8 + 4 = 12$ chaffinches, which is twice as many chaffinches as robins, so option D is true. She saw $20 - 17 = 3$ more starlings on Saturday than Sunday, so option E is false.

1 b) 35

Add up all the birds seen on Sunday that were not starlings:
 $15 + 2 + 1 + 5 + 4 + 8 = 35$ birds.

1 c) 21

The total number of birds she saw on Saturday is:
 $12 + 4 + 3 + 10 + 8 + 6 + 20 = 63$.

Divide 63 by 3 to get the number of adult birds Lyra saw. Partition 63 into 60 and 3, and divide these numbers separately:
 $60 \div 3 = 20$ and $3 \div 3 = 1$, so $63 \div 3 = 21$ adult birds.

2 a) 13

Shape C has 5 faces and shape D has 8 vertices, so the answer is $5 + 8 = 13$.

2 b) B, D and E

A prism has the same face at each end, so shapes A and C are not prisms, and shapes B, D and E are prisms.

2 c) C and D

Shape C has 8 edges and shape D has 12 edges.
 $8 = 2 \times 4$ and $12 = 3 \times 4$, so they are both multiples of 4.

3 a) 874

There will be $957 - 83$ teddy bears in the warehouse after the order. You could use written subtraction to do this calculation:

$$\begin{array}{r} 957 \\ - 83 \\ \hline 874 \end{array}$$

3 b) 2

You can use short division to find the answer here:

$$\begin{array}{r} 261r2 \\ 6 \overline{)15368} \end{array}$$

So there will be 2 balls left over.

3 c) 7

The number of toy cars in a pack is a common factor of 35 and 63.

The factors of 35 are 1, 5, 7, and 35.

The factors of 63 are 1, 3, 7, 9, 21 and 63.

The common factors of 35 and 63 are 1 and 7.

The pack contains more than 1 toy car, so must contain 7.

3 d) 7532

The first four prime numbers are 2, 3, 5 and 7. In order from biggest to smallest, these digits make the number 7532.

4 a) 2800 mm

The plant is 2.8 m tall.

$1 \text{ m} = 1000 \text{ mm}$, so $2.8 \text{ m} = 2.8 \times 1000 = 2800 \text{ mm}$.

4 b) 0.028 m

The plant is 2.8 m and has been growing for 100 days, so it grows $2.8 \div 100 = 0.028 \text{ m}$ each day.

4 c) 25%

Change the units so both heights are in the same units — cm are easier to use here:

$1 \text{ m} = 100 \text{ cm}$, so $2.8 \text{ m} = 2.8 \times 100 = 280 \text{ cm}$.

$280 = 70 \times 4$, so the second sunflower is a quarter of the height of the first. This is the same as 25%.

5 a) 2017

The highest point on the graph is in 2017.

5 b) 2.5 m

Each interval on the vertical axis is 2 m, so each square is $2 \div 2 = 1 \text{ m}$. The pond was 6 m deep in 2012 and 3.5 m deep in 2013, so was $6 - 3.5 = 2.5 \text{ m}$ deeper in 2012 than in 2013.

5 c) 3.5 m

Between 2012 and 2013, 2014 and 2015, and 2017 and 2018, the depth decreased.

Between 2013 and 2014, the depth increased by $7 - 3.5 = 3.5 \text{ m}$.

Between 2015 and 2016, the depth increased by $5 - 3 = 2 \text{ m}$.

Between 2016 and 2017, the depth increased by $7.5 - 5 = 2.5 \text{ m}$.

So the greatest increase in depth was 3.5 m.

5 d) $\frac{1}{3}$

The pond was 2 m deep in 2018 and 6 m deep in 2012.

As a fraction this is $\frac{2}{6}$, which is the same as $\frac{1}{3}$.

6 a) $\frac{1}{5}$

The grid is split into $5 \times 5 = 25$ squares and 5 are covered by crosses.

This is $\frac{5}{25}$ as a fraction and dividing the numerator and denominator by 5 gives $\frac{1}{5}$.

6 b) 36%

You know from part a) that there are 25 squares, so the noughts cover $\frac{9}{25}$ of the grid. To convert the denominator of $\frac{9}{25}$ to 100, you multiply it by $100 \div 25 = 4$. Multiplying the numerator by the same amount gives $9 \times 4 = 36$, so $\frac{9}{25}$ is the same as $\frac{36}{100}$ or 36%.

6 c) 0.48

There will be 13 noughts and 12 crosses, as these are the only two numbers that add up to 25 and have a difference of 1.

The proportion of crosses is $\frac{12}{25}$, which is the same as $\frac{48}{100}$, which as a decimal is 0.48.

7 a) 3.3 kg

0.33 g and 33 g are very light — 33 g is less than the weight of a tennis ball. 33 kg is about the weight of a 10 year old, and so this is too big, and so is 3300 kg. So the best estimate for the weight of a brick is 33 kg.

7 b) 12.5 litres

The builder uses 5×2500 ml of water. Partition 2500 into 2000 and 500, and multiply the numbers separately:
 $5 \times 2000 = 10\ 000$ and $5 \times 500 = 2500$,
 so $5 \times 2500 = 10\ 000 + 2500 = 12\ 500$ ml.
 1000 ml = 1 litre, so:
 $12\ 500$ ml = $12\ 500 \div 1000 = 12.5$ litres.

7 c) 7 cm

There are 5 layers of cement, so the total height of the cement layers is $5 \times 12 = 60$ mm.
 10 mm = 1 cm, so 60 mm = $60 \div 10 = 6$ cm.
 Subtract 6 cm from the height of the wall to get the total height of the bricks: $48 - 6 = 42$ cm.
 There are 6 brick layers, so the height of one brick is:
 $42 \div 6 = 7$ cm.

8 a) Rowan

Rowan is the third highest bar.

8 b) 35

There are 90 oak and $35 + 20 = 55$ willow and ash,
 so there are $90 - 55 = 35$ more oak.

8 c) 20%

There were 75 elm and there are now 15 elm. The number of elm left as a fraction is $\frac{15}{75}$. $\frac{15}{75} = \frac{1}{5}$, which equals 20%.

8 d) £308

There are $35 + 90 + 70 + 15 + 50 + 20 = 280$ trees.
 $\pounds 1 \times 280 = \pounds 280$ and $\pounds 0.10 \times 280 = \pounds 280 \div 10 = \pounds 28$.
 So the total amount of money made is $\pounds 280 + \pounds 28 = \pounds 308$.

9 a) £19

It costs $\pounds 5.70 \times 2 = \pounds 11.40$ for two children, so Anita will pay
 $\pounds 11.40 + \pounds 7.60 = \pounds 19$.

9 b) 5(5.70 + 3.98)

Mr Turner buys a guidebook for each child, so the cost for each child is $5.70 + 3.98$. There are five children, so $5.70 + 3.98$ is multiplied by 5 to give $5 \times (5.70 + 3.98)$, which can be written as $5(5.70 + 3.98)$.
 Alternatively, there are five children and five guidebooks, so Mr Turner pays $5 \times 5.70 + 5 \times 3.98$, which simplifies to $5(5.70 + 3.98)$.

9 c) £7.98

Two adults cost $\pounds 12.30 \times 2 = \pounds 24.60$ and you know two children cost $\pounds 11.40$ from part a). In total, the people and guidebook cost $\pounds 24.60 + \pounds 11.40 + \pounds 3.98 = \pounds 39.98$. So the family entry price saves $\pounds 39.98 - \pounds 32.00 = \pounds 7.98$.

Section 3: Non-Verbal Reasoning**1) C**

In each series square, the arrow rotates 90 degrees clockwise. The hatching rotates with the arrow.

2) A

In each series square, the grey shading moves down one circle.

3) D

In each series square, the arrow moves one place round the corners of the square in a clockwise direction.

4) A

The squares in this series are in two pairs. In each pair, the shapes swap places and shadings.

5) C

In each series square, one more circle is shaded grey working from left to right along the arrows. The shape of the arrowheads alternate between triangles and squares.

6) B

In each series square, one more small diamond moves outside the circle. The circle moves one place anticlockwise around the edges of the series square.

7) B

In each series square, the figure is reflected across. The horizontal hatching moves down one block.

8) D

In all other figures, the large shape has a dashed outline.

9) A

All other figures contain two shapes that are identical except for shading.

10) D

In all other figures, the two lines cross over each other.

11) C

In all other figures, the spiral is going in a clockwise direction towards the centre.

12) C

In all other figures, the two black stars are on the same side of the curved line.

13) B

In all other figures, the smaller shape is a 90 degree clockwise rotation of the larger shape with the shading swapped. The hatching rotates with the shape.

14) E

In all other figures, the number of points on the large white shape is an odd number.

15) C

Option A is the wrong shape. Option B has the wrong shading. Option D is a 180 degree rotation.

16) D

Option A has the wrong shading. Option B has not been reflected. In option C, the arrows are in the wrong places.

17) C

Options A and B are the wrong shape. In option D, the black square is in the wrong place.

18) A

Option B is a 180 degree rotation. In option C, the rings have the wrong rotation. Option D has the wrong layering.

19) D

In option A, the star has been rotated. In option B, the grey triangle is the wrong shape. In option C, the star is in the wrong place.

20) C

In option A, the black triangle is in the wrong place. Option B is a rotated reflection. In option D, the horizontal rectangle is in the wrong place.

21) B

Option A is a rotated reflection. Option C is a 90 degree anticlockwise rotation. Option D is the wrong shape.

22) C

The whole grid has a horizontal and vertical line of symmetry.

23) A

Working from top to bottom, the shape at the back is removed.

24) C

In each row, the third grid square is formed by combining the first grid square with the second grid square. The shape in the second grid square is rotated 90 degrees anticlockwise.

25) D

Working from left to right, both shapes move down one line. The shapes swap shading.

26) C

Working from top to bottom, the large shape changes shading in the order: grey, white, black. Working from left to right, the small shape moves one place anticlockwise around the corners of the grid square.

27) A

Each figure only appears once in each row and column.

28) D

All figures must have a black circle inside a larger shape.

29) B

All figures must contain a set of parallel dashed lines that are diagonal.

30) D

All figures must contain two wavy lines that cross over each other. The wavy lines must have a circle at each end. Circles on the same wavy line must have the same shading.

31) A

In all figures, there must be a white, horizontal rectangle at the top. The three rectangles below the white rectangle must be in size order from left to right, with the longest at the left.

32) A

In all figures, all lines of symmetry must be drawn on the shape.

33) B

All figures must contain a triangle, a circle and a rectangle. The layering of the shapes, from front to back, must be: triangle, circle, rectangle. There must be two arrows that point towards each other.

34) C

In all figures, there must be a small black shape inside a large white shape. The large white shape must be in front of a large black shape. The small black shape must be the same shape as the shape created by the overlap of the two large shapes.