



BROAD HORIZON
— T U I T I O N —

11+ Tuition

Year 4

Mock Exam 02

Week 48

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.

Set B — Paper 1

Section 1: Verbal Reasoning — Comprehension 1

1) B

The phrase 'to watch the world go by' means 'to watch people living their normal lives'.

2) C

In line 2, the road below Sarah's window is described as a "busy high street".

3) B

Lines 18-19 state that the toy shop was full of "all sorts of strange" things. This means that the shop sold unusual toys.

4) A

The phrase 'to pale in comparison to' means 'to look worse when compared to'. So the other toys in the shop didn't seem as good once Sarah had seen the kite.

5) C

Line 22 states that the kite was "enormous".

6) D

Lines 26-28 state that Sarah "volunteered for extra chores" so that "she could save as much money as possible." This suggests that her parents gave her more pocket money for doing extra chores.

7) D

The text mentions that Sarah is looking out of her window on the Saturday the "week before her birthday" (line 34), but the actual date of her birthday is not given.

8) C

Lines 30-31 state that "the wait until" Sarah's birthday "seemed impossible", which shows that Sarah feels that it is a long time to wait. She shows her impatience by counting down the days on her calendar to check how many days are left until her birthday.

9) C

Line 35 states that it was "a miserable, rainy, dark day" when Sarah saw the mysterious person go into the toy shop. The mysterious person was also carrying "an enormous umbrella" and "jumping to avoid the puddles forming on the pavement" (lines 39-40).

10) B

Lines 50-51 state that "a gust of wind caught the person's umbrella and Sarah was able to see the face that had been hidden underneath it." The face that she sees is her dad's and she recognises him at once.

11) C

Lines 55-56 explain how Sarah realised that "she was going to get the kite for her birthday after all." This shows that her dad bought the kite as a birthday present for Sarah. Putting your finger to your lips suggests that something is a secret. Sarah's dad put his finger to his lips because it was still a week before her birthday and she wasn't supposed to know about the present yet.

12) D

'relieved' means 'no longer worried'. Earlier in the text, Sarah was worried because she saw someone else buying the kite she wanted. When she realised it was her dad and that he had bought the kite for her, a "grin spread across her face" (line 55). This shows that she was no longer worried because she realised she would get the kite after all.

13) B

"watchful" means 'observant' or 'attentive'.

14) A

"glinted" means 'sparkled' or 'twinkled'.

15) C

The phrase 'to long for something' means 'to wish you had something'. Sarah gazed at the kite "longingly", which means that she wished she had the kite

Section 2: Verbal Reasoning — Comprehension 2

1) B

Lines 1-2 state that the "three enormous waterfalls" are "known collectively as Niagara Falls." This means that Niagara Falls is a group of three waterfalls.

2) C

Line 6 states that "Angel Falls in Venezuela is widely accepted as the world's tallest waterfall."

3) D

Line 15 states that Annie Edson Taylor "went over the Falls" in 1901.

4) D

Line 15 states that Annie Edson Taylor "went over the Falls in a barrel", so she didn't use a special boat.

5) B

Line 17 states that Annie was "very bruised and frightened". 'Frightened' means 'unnerved' or 'shaken'.

6) C

Lines 22-24 state that Charles Blondin "performed a whole range of unbelievable stunts" including "crossing the tightrope" while "wearing stilts."

7) A

Lines 26-27 state that "Millions of people visit Niagara Falls each year to admire the amazing views", which means that they come to look at the scenery.

8) C

Lines 27-28 state that the "Maid of the Mist" is a "well-known boat tour" used by tourists who wish to "see the waterfalls close up."

9) D

"surging" means 'gushing' or 'rushing'.

10) B

"astonishingly" means 'incredibly' or 'surprising'.

Section 3: Verbal Reasoning — Odd One Out

- 1) **sharp**
The other three mean 'quick'.
- 2) **hammered**
The other three are tools.
- 3) **nose**
The other three are parts of a foot.
- 4) **supermarket**
The other three are names of people who work in shops.
- 5) **Multiplication**
The other three are subjects taught at school.
- 6) **London**
The other three are countries.
- 7) **water**
The other three can be used to mark surfaces and create pictures.
- 8) **go-kart**
The other three can be found in a playground.
- 9) **arm**
The other three are body parts that humans don't have.
- 10) **cycle**
The other three are activities that you don't necessarily need equipment to do.
- 11) **America**
The other three are all oceans.
- 12) **poster**
The other three are examples of books.
- 13) **doormat**
The other three are things you could hang on the wall.
- 14) **neighbour**
The other three mean 'friend'.
- 15) **saucepan**
The other three are all electrical kitchen appliances.
- 16) **entertainment**
The other three mean 'comical'.
- 17) **chop**
The other three are cooking techniques that involve heat.
- 18) **outstanding**
The other three mean 'strange'.

Section 4: Verbal Reasoning — Shuffled Sentences

- 1) **waiting**
The words can be rearranged into the sentence 'She sprinted down the long path.'
- 2) **performed**
The words can be rearranged into the sentence 'The actor couldn't remember his lines.'
- 3) **terrify**
The words can be rearranged into the sentence 'The mansion is haunted by ghosts.'
- 4) **threat**
The words can be rearranged into the sentence 'Not all snakes are poisonous.'
- 5) **played**
The words can be rearranged into the sentence 'Satoshi loved to collect trading cards.'
- 6) **like**
The words can be rearranged into the sentence 'Joel hated mushrooms on his pizza.'
- 7) **taste**
The words can be rearranged into the sentence 'Sugary sweets are bad for your teeth.'
- 8) **finish**
The words can be rearranged into the sentence 'Millie was stuck on the final puzzle.'
- 9) **tyre**
The words can be rearranged into the sentence 'He drove the car very slowly.'
- 10) **fought**
The words can be rearranged into the sentence 'The brothers looked very similar.'
- 11) **stripes**
The words can be rearranged into the sentence 'My sock has a hole in it.'
- 12) **people**
The words can be rearranged into the sentence 'Public speaking made her nervous.'
- 13) **bed**
The words can be rearranged into the sentence 'My best friend is sleeping over tonight.'
- 14) **cackle**
The words can be rearranged into the sentence 'Zara told many hilarious jokes at dinner.'
- 15) **visited**
The words can be rearranged into the sentence 'Nathan started to miss his family.'

Section 5: Verbal Reasoning — Cloze

- 1) **heard**
'Have you ever **heard** the expression "dead as a dodo"?'
- 2) **has**
'the dodo, which **has** been extinct'
- 3) **over**
'for **over** 300 years.'
- 4) **means**
'This **means** that there aren't any dodos still alive'
- 5) **lived**
'They **lived** on the island of Mauritius'
- 6) **coast**
'off the east **coast** of Africa.'
- 7) **arrived**
'Until humans **arrived** on Mauritius in the 1500s'
- 8) **able**
'dodos were **able** to survive with no natural predators'
- 9) **change**
'things started to **change**.'
- 10) **Although**
'**Although** people did hunt some of the dodos'
- 11) **believed**
'it is **believed** that'
- 12) **threat**
'the biggest **threat** to dodos came from the animals'
- 13) **brought**
'that people had **brought** with them'
- 14) **including**
'These animals, **including** pigs and rats'
- 15) **lot**
'stole a **lot** of their food.'
- 16) **many**
'there weren't **many** dodos left alive.'
- 17) **alive**
'there weren't many dodos left **alive**.'
- 18) **exactly**
'Nobody knows **exactly** when the last dodo died'

Section 6: Non-Verbal Reasoning

- 1) **B**
There should be a dark grey block, two cubes long, at the back of the figure. This rules out options A, C and D.
- 2) **A**
There should be a block, two cubes long, lying along the bottom of the figure. This rules out options C and D. There should be a cube at the top left-hand side of the figure, which rules out option B.
- 3) **A**
There should be a dark grey block, two cubes tall, on the right-hand side of the figure. This rules out options B and D. There should be a cube at the front of the figure on the left-hand side at the top, which rules out option C.

- 4) **D**
There should be a dark grey cube at the bottom of the figure on the left-hand side. This rules out options B and C. There should be a block, two cubes long, coming out of the page on the right-hand side of the figure. This rules out option A.
- 5) **C**
There should be a block, three cubes long, at the back of the figure. This rules out options A and D. There should be a cube at the front of the figure on the right-hand side, which rules out option B.
- 6) **D**
There should be a cube at the bottom of the figure, in the middle. This rules out options A, B and C.
- 7) **D**
In options A and C, the fold line has moved. In option B, the figure has been broken apart along the fold line.
- 8) **B**
In options A and D, the part of the figure that has been folded is the wrong shape. In option C, the fold line has moved.
- 9) **C**
In option A, the part of the figure originally to the right of the fold line should still be visible. In option B, the part of the figure originally to the right of the fold line is the wrong shape. In option D, the fold line has moved.
- 10) **C**
In options A and B, the fold line has moved. In option D, the part of the figure originally below the fold line should still be visible.
- 11) **A**
In option B, the part of the figure originally to the left of the fold line is the wrong shape. In option C, the part of the figure that has been folded is the wrong shape. In option D, the fold line has moved.
- 12) **C**
In options A and D, the part of the figure that has been folded is the wrong shape. In option B, the fold line has moved.
- 13) **B**
In option A, the part of the figure that has been folded is the wrong shape. In option C, the fold line has moved. In option D, the part of the figure originally to the left of the fold line is the wrong shape.
- 14) **D**
There are four blocks visible from above, which rules out options A and C. There are two blocks visible on the right, which rules out option B.
- 15) **A**
There are three blocks visible from above, which rules out options B and D. There is one block visible on the right, which rules out option C.
- 16) **B**
There are six blocks visible from above, which rules out options C and D. There are two blocks visible on the left, which rules out option A.
- 17) **A**
There are four blocks visible from above, which rules out options C and D. There are two blocks visible at the front, which rules out option B.
- 18) **C**
There are five blocks visible from above, which rules out options B and D. There are two blocks visible at the back, which rules out option A.

19) D

There are five blocks visible from above, which rules out options A and C. There are three blocks visible on the left, which rules out option B.

Set B — Paper 2

Section 1: Verbal Reasoning — Antonyms

1) delay

'hurry' means 'to make quicker', whereas 'delay' means 'to make slower'.

2) definitely

'maybe' means 'possibly', whereas 'definitely' means 'certainly'.

3) soothe

'irritate' means 'to cause discomfort', whereas 'soothe' means 'to ease discomfort'.

4) unnecessary

'crucial' means 'very important', whereas 'unnecessary' means 'not important'.

5) push

'drag' means 'to pull something along with you', whereas 'push' means 'to move something away from you'.

6) steady

'wobbly' means 'unstable', whereas 'steady' means 'stable'.

7) certain

'unsure' means 'unconvinced', whereas 'certain' means 'convinced'.

8) harm

'aid' means 'to help', whereas 'harm' means 'to hurt'.

9) parent

'child' means 'a son or daughter', whereas 'parent' means 'a mother or father'.

10) shrink

'swell' means 'to get bigger', whereas 'shrink' means 'to get smaller'.

11) bald

'hairy' means 'covered with hair', whereas 'bald' means 'without hair'.

12) fire

'hire' means 'to give someone a job', whereas 'fire' means 'to sack someone from a job'.

13) countryside

'city' means 'an urban area', whereas 'countryside' means 'a rural area'.

14) unfashionable

'trendy' means 'popular', whereas 'unfashionable' means 'unpopular'.

15) prevent

'cause' means 'to make something happen', whereas 'prevent' means 'to stop something happening'.

Section 2: Verbal Reasoning — Synonyms

1) increase

Both words mean 'to make bigger'.

2) regularly

Both words mean 'frequently'.

3) pleasure

Both words mean 'a feeling of happiness'.

4) incorrect

Both words mean 'untrue'.

5) mention

Both words mean 'to express with words'.

6) picture

Both words mean 'a photograph'.

7) border

Both words mean 'a boundary'.

8) scorched

Both words mean 'damaged by fire'.

9) display

Both words mean 'to demonstrate'.

10) award

Both words mean 'something that shows recognition of achievement'.

11) pimple

Both words mean 'a blemish on the skin'.

12) chunk

Both words mean 'a part'.

13) employer

Both words mean 'the person who is in charge of a worker'.

14) ideal

Both words mean 'exactly right'.

15) barrier

Both words mean 'something that separates two areas of land'.

Section 3: Numerical Reasoning

1) Japan, Red, Black, North

Compare the digits in each place, from left to right. Both the Sea of Japan and the Red Sea have 3 in the thousands place. The Sea of Japan has 7 hundreds and the Red Sea has 0 hundreds, so the Sea of Japan has the largest depth. The Black Sea has 2 in the thousands place, and the North Sea doesn't have any thousands (it's only a three-digit number). So the list in order from largest to smallest depth is:

Sea of Japan, Red Sea, Black Sea, North Sea.

2) 80 °C

An anticlockwise turn means the temperature will go down. One quarter of the dial is 3 of the divisions, so the dial ends up on 80 °C.

3) 3680

Hannah's number has 3 in the thousands column and 8 in the tens column, so only 3680 can be the correct option.

4 a) parallelogram

It can't be a square or a rhombus since the sides aren't all the same length. A rectangle only has 90° angles so that can also be ruled out. If the shape was a kite then one of the sides next to the 8 cm side would also be 8 cm, but they both look smaller. So it must be a parallelogram.

4 b) 5 cm

In a parallelogram, opposite sides have the same length. So $a = 5$ cm.

5) 26

The full number line covers 18 to 38, and $38 - 18 = 20$. There are 10 divisions, so each of these covers $20 \div 10 = 2$. The circled number is 4 divisions from 18, so its value is $18 + (4 \times 2) = 18 + 8 = 26$.

6 a) 9

Each horizontal line represents $4 \div 2 = 2$ children. The bar for clarinet is halfway between 8 and 10, which is 9 children.

6 b) 15

Find how many children were given an instrument by reading off the heights of all the bars.

Flute: 12. Violin: 2. Guitar: 20. Piano: 17. Clarinet: 9.

Then add all of these up: $12 + 2 + 20 + 17 + 9 = 60$.

So 60 of the 75 children were given an instrument and $75 - 60 = 15$ were not.

7) 22

Only the cube faces on the outside of the shape will be painted. There are 6 faces on the front of the shape, 6 faces on the back, 3 faces on the bottom, 3 faces on the top and 2 faces on each side. So $6 + 6 + 3 + 3 + 2 + 2 = 22$ faces will be painted.

8) 980 miles

You can use the column method for addition:

$$\begin{array}{r} 766 \\ + 215 \\ \hline 981 \\ \hline \end{array}$$

You're rounding the 8 in the tens column, so look at the digit to the right of it (in the ones column). It's a 1, so round down to 980 miles.

9 a) 5

Reading from the last column in the table, Henry VIII had 6 wives and Charles II had 1 wife. So Charles II had $6 - 1 = 5$ fewer wives than Henry VIII.

9 b) 1087

Reading from the first column, William I had his coronation in 1066. Use partitioning to do $1066 + 21$: $1066 + 20 = 1086$ and $1086 + 1 = 1087$, so $1066 + 21 = 1087$.

9 c) 44

Count on from 1559 to 1603 to find the answer:

Add 1 to get to 1560, then 40 to get to 1600 and another 3 to get to 1603. So there were $1 + 40 + 3 = 44$ years between Elizabeth I's coronation and death.

10 a) 70

If there are 5 trophies on 7 shelves then that means there are $7 \times 5 = 35$ trophies in total. Each of these has 2 handles, so that's $2 \times 35 = 70$ handles.

10 b) 14

You know from part a) that there are 35 trophies in the cabinet. $\frac{1}{5}$ of 35 = $35 \div 5 = 7$, so $\frac{2}{5}$ of 35 = $7 \times 2 = 14$.

11) D

A and B have no lines of symmetry. C is a regular hexagon with 6 lines of symmetry and E is a square so it has 4 lines of symmetry. The three lines of symmetry of shape D are:



12) 0

If you multiply any number by 0, the answer is always 0.

13) 55 g

550 g is about the weight of a pack of margarine, so 550 g, 5.5 kg and 55 kg are too heavy for a hen's egg. A teaspoon of water weighs about 5 g, so 5.5 g is too light for a hen's egg. So 55 g is the best estimate for the weight of a hen's egg.

14 a) 6

Elijah saw $\text{☉} \times 2 = 4 \times 2 = 8$ bubbles. Jackie's row in the pictogram contains a ☉ symbol, which is half of ☉ , so it stands for $4 \div 2 = 2$ bubbles.

So Jackie saw $\text{☉} \times 3 + \text{☉} = 4 \times 3 + 2 = 12 + 2 = 14$ bubbles.

That means Elijah saw $14 - 8 = 6$ fewer bubbles.

14 b) 54

You know from part a) that Elijah saw 8 bubbles and Jackie saw 14 bubbles. Selwyn saw $\text{☉} \times 3 = 4 \times 3 = 12$ bubbles and Varesh saw $\text{☉} \times 5 = 4 \times 5 = 20$ bubbles. The total number of bubbles seen was $8 + 14 + 12 + 20 = 54$ bubbles.

14 c) $\frac{12}{54}$

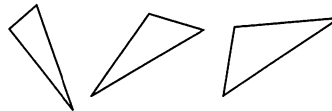
From part b), you know that Selwyn saw 12 bubbles and the total number of bubbles seen was 54. So, as a fraction, Selwyn saw $\frac{12}{54}$ of the bubbles.

15 a) B

The sides of this octagon all have the same length, so it goes in either sections A or B. Looking at the angles, they're all greater than 90° so the shape has no acute angles. This means it goes in section B.

15 b) C

A scalene triangle has sides that aren't the same length, so it's going to have to go in sections C or D. No matter how you draw a scalene triangle (see some examples below), at least two of the angles must be less than 90° . So it goes in section C.



16) 8

The difference between 9.5 and 6.5 is 3. So the number that is halfway between the two of them must be $3 \div 2 = 1.5$ away from them both. So the answer is $6.5 + 1.5 = 8$. You can check by adding on 1.5 again: $8 + 1.5 = 9.5$, as you'd expect.

17 a) 25 days

There are 7 days in a week, so there are $3 \times 7 = 21$ days in 3 weeks. Add on the additional 4 days to get $21 + 4 = 25$ days.

17 b) Friday

The number of weeks isn't important (you can add on as many weeks as you like and you'll just keep coming back around to Monday), so just concentrate on the additional number of days. Count on 4 days after Monday: Tuesday, Wednesday, Thursday, Friday.

18 a) 6

For each of the three meals there are two different drinks options — orange juice or mineral water. So there are $3 \times 2 = 6$ different combinations of a meal and a drink.

18 b) £12.65

Work out how much Monica needs to pay: $\text{£}6.40 + 95\text{p}$. $95\text{p} = \text{£}1 - 5\text{p}$, so first add on $\text{£}1$ to $\text{£}6.40$: $\text{£}6.40 + \text{£}1 = \text{£}7.40$. Then subtract 5p: $\text{£}7.40 - 5\text{p} = \text{£}7.40 - \text{£}0.05 = \text{£}7.35$. Subtract this from $\text{£}20$ to work out how much change Monica got: $\text{£}7$ less than $\text{£}20$ is $\text{£}13$ and 35p less than $\text{£}13$ is $\text{£}12.65$.

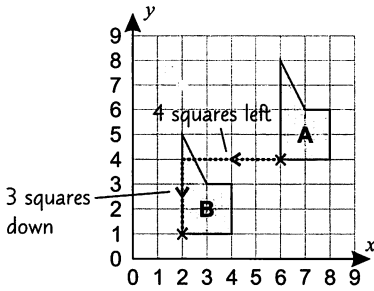
19) 5400

$9 \times 6 = 54$ and $600 = 6 \times 100$.

So, $9 \times 600 = 54 \times 100 = 5400$.

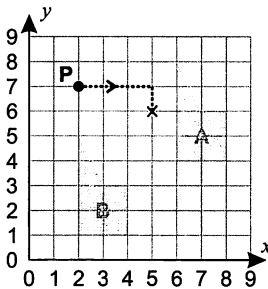
20 a) 4 squares left, 3 squares down

Pick a point on A and match it to the corresponding point on B, counting how many squares you move in each direction. E.g. using the point in the bottom-left corner of the shapes:



20 b) (5, 6)

Slide P three squares to the right and one square down and see where it ends up:



21 a) 1.74 kg

To divide by 100, move all the digits two places to the right. So $174 \text{ kg} \div 100 = 1.74 \text{ kg}$.

21 b) 859 kg

Use column subtraction to find the difference between the weights:

$$\begin{array}{r} 174 \\ - 174 \\ \hline 859 \end{array}$$

22) 49

$X = 10$, $L = 50$ and $I = 1$.
 X appears before the larger L , so $XL = 50 - 10 = 40$.
 I appears before the larger X , so $IX = 10 - 1 = 9$.
 So the number is $40 + 9 = 49$.

23 a) 303 mm

Change the units so both lengths are in the same units — mm are easier to use here. $1 \text{ cm} = 10 \text{ mm}$, so $36 \text{ cm} = 360 \text{ mm}$. So the difference between their hair lengths is $360 - 57 = 303 \text{ mm}$.

23 b) 6 cm

$10 \text{ mm} = 1 \text{ cm}$, so $57 \text{ mm} = 57 \div 10 = 5.7 \text{ cm}$. To round to the nearest centimetre, look at the digit in the tenths column. It's 7, so round up to give 6 cm.

24 a) 72

$4 + 5 = 9$, $9 \times 8 = 72$.

24 b) 6

Work backwards through the machine:
 $88 \div 8 = 11$, $11 - 5 = 6$
 (To make sure you've got the answer right, you can put 6 into the machine and check that you get 88 out of it.)

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

$\frac{5}{12} + \frac{1}{12} = \frac{6}{12} = \frac{1}{2}$ of his games are either action or puzzle.
 So $1 - \frac{1}{2} = \frac{1}{2}$ are not action or puzzle.

26 a) 35

Read off how many carrots the greengrocer had at 10 am (= 10:00) and at 1 pm (= 13:00). At 10 am, the greengrocer had 50 carrots. At 1 pm, the greengrocer had 15 carrots. So she sold $50 - 15 = 35$ carrots between these two times.

26 b) 15:00-16:00

If the greengrocer had a delivery of carrots then you'd expect to see an increase in the number of carrots that she has in stock. This happens between 15:00 and 16:00.

27 a) 616

Multiply the number of desks by the number of chairs. You can use short multiplication:

$$\begin{array}{r} 154 \\ \times 4 \\ \hline 616 \end{array}$$

27 b) 77

Partition 154 into 150 and 4, and divide each part by 2 separately: $150 \div 2 = 75$ and $4 \div 2 = 2$, so half of 154 = $75 + 2 = 77$.

27 c) 11

You need to work out how many 14s go into 154: $140 \div 14 = 10$ and $140 + 14 = 154$, so $154 \div 14 = 11$.

28 a) 125 ml

To make 8 glasses of fruit drink you need 250 ml of lemon juice. To make 4 glasses of fruit drink, you'd need $250 \div 2 = 125 \text{ ml}$ of lemon juice.

28 b) 3

1 lime makes 8 glasses, so 2 limes make 16 glasses and 3 limes make 24 glasses. 2 whole limes isn't enough, so you'll need 3.

28 c) 1500 ml

1 litre = 1000 ml, which is needed to make 8 glasses of fruit drink. So $1000 \text{ ml} \div 2 = 500 \text{ ml}$ is needed to make 4 glasses. So, to make 12 glasses, you'd need $1000 \text{ ml} + 500 \text{ ml} = 1500 \text{ ml}$.

29) 9

The UK takes up a quarter of the circle, so a quarter of the people answered that they'd rather go on holiday in the UK. $\frac{1}{4}$ of 36 = $36 \div 4 = 9$.

30 a) £18.00

The 4-pack works out as $\pounds 2.40 \div 4 = \pounds 0.60$ per roll.
 The 9-pack works out as $\pounds 4.50 \div 9 = \pounds 0.50$ per roll.
 The 12-pack works out as $\pounds 9.60 \div 12 = \pounds 0.80$ per roll.
 So the 9-pack is the cheapest option of the three.
 $36 \div 9 = 4$, so you'll need to buy 4 of these to have 36 rolls, which will cost: $\pounds 4.50 \times 4 = \pounds 18$.

30 b) £3.00

$\frac{1}{3}$ of $\pounds 4.50 = \pounds 4.50 \div 3 = \pounds 1.50$.
 So $\frac{2}{3}$ of $\pounds 4.50 = 2 \times \pounds 1.50 = \pounds 3$.