BROAD HORIZON
TUITION

11+ Tuition

Year 5 - Intensive

Week 2 – Session 2

ANSWERS

Contents

Starter Task – Maths

1) How do you work out the mean? Add up all the numbers and divide by how many numbers there are

2) What is the 'range'? Difference between largest and smallest number

3) What is the 'mode'? the most common number

4) How do you work out the median? Put the numbers in order and find the number in the middle

(4 marks)

Now work out the Mean, Mode, Median and Range of the numbers in bold on the left-hand side. You will get 1 mark for each individual calculation.

		Mode	Range	Mean	Median
5)	**7, 8, 12, 6**	None	6	8.25	7.5
6)	**3, 9, 17, 11**	None	14	10	10

Starter Task – Verbal

GL Techniques

Type 10:

There is a connection between the 2 words on the outside of the brackets and TWO of the words inside the brackets. Underline the two words. For Example:

DOG HAMSTER (*cat*, doll, pet, *rabbit*, black)

1) princess woman
2) silver lead

Type 11:

3) A

4) E

5) D

Type 12:

Each of the following pairs of brackets has ONE word which does not belong to the rest. Underline this 'odd one out'.

6) person
7) ball

Type 13:

Underline the word which would come in the MIDDLE if the following were put in order of size, sequence or position. Here is an example:

(youth adult *child* toddler baby)

8) dog

9) orange

Type 14:

Underline the ONE word inside the brackets which CANNOT be made using the letters of the word outside the brackets.

10) meant

11) track T14/2

Type 15:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The following questions are all concerned with the alphabet.

12) 21st

13) it

Number Lines and Patterns - Practice

Continue each pattern and write down what the rule is. The first one has been done for you!

Whole Number Patterns:

1. 20, 42, 64, 86, 108, **130**, **152**, **174** — Rule = **the pattern is add 22**
2. 109, 124, **139**, 154, 169, **184**, **199** — Rule = **the pattern is add 15**
3. 120, 108, **96**, **84**, 72, 60, **48**, **36** — Rule = **the pattern is subtract 12**

Decimal Number Patterns:

4. 0.010, 0.015, 0.020, **0.025**, 0.030, **0.035**, **0.040** — Rule = **the pattern is add 0.005**
5. 1.5, 1.7, 1.9, **2.1**, **2.3**, 2.5, **2.7** — Rule = **the pattern is add 0.2**

Fraction Number Patterns:

6. $\frac{1}{2}$, 1, $1\frac{1}{2}$, **2**, $\mathbf{2\frac{1}{2}}$, 3, $\mathbf{3\frac{1}{2}}$, 4, $4\frac{1}{2}$, **5** — Rule = **the pattern is add $\frac{1}{2}$** (one half)
7. 5, $4\frac{3}{4}$, $4\frac{2}{4}$, $\mathbf{4\frac{1}{4}}$, 4, $\mathbf{3\frac{3}{4}}$, $\mathbf{3\frac{2}{4}}$ — Rule = **the pattern is subtract $\frac{1}{4}$** (one quarter)

Continue the Number Patterns **Answers**

Continue each pattern and write down what the rule is. The first one has been done for you!

Whole Number Patterns:

1. 120, 142, 164, 186, 208, **230**, **252**, **274** Rule = **the pattern is add 22**
2. 975, 930, 885, 840, **795**, **750**, **705** Rule = **the pattern is subtract 45**
3. 14, 28, **42**, 56, **70**, 84, **98** Rule = **the pattern is add 14**

Decimal Number Patterns:

4. 0.12, 0.23, 0.34, **0.45**, 0.56, 0.67, **0.78**, 0.89, **1** Rule = **the pattern is add 0.11**
5. 12.9, 11.87, 10.84, **9.81**, 8.78, 7.75, **6.72**, **5.69** Rule = **the pattern is subtract 1.03**

Fraction Number Patterns:

6. $6\frac{4}{6}$, $6\frac{3}{6}$, $\mathbf{6\frac{2}{6}}$, $\mathbf{6\frac{1}{6}}$, 6, $5\frac{5}{6}$, $\mathbf{5\frac{4}{6}}$, $5\frac{3}{6}$, $\mathbf{5\frac{2}{6}}$, $5\frac{1}{6}$, **5** Rule = **the pattern is subtract $\frac{1}{6}$**
7. $4\frac{1}{5}$, $\mathbf{4\frac{2}{5}}$, $4\frac{3}{5}$, $4\frac{4}{5}$, **5**, $\mathbf{5\frac{1}{5}}$, $5\frac{2}{5}$, $5\frac{3}{5}$, $\mathbf{5\frac{4}{5}}$ Rule = **the pattern is add $\frac{1}{5}$**

Negative Numbers and Temperature - Practice

Negative Numbers and Temperature **Answers**

1.

a. -8°C, -6°C, -4°C ,-1°C, 2°C,

b. -15°C, -11°C, 6°C, 10°C ,14°C

c. -25°C, -23°C, -13°C, 12°C, 16°C, 18°C ,20°C

2.

a. -4°C

b. -8°C

c. -17°C

d. -6°C

3.

a. 11°C

b. 13°C

c. -2°C

d. 8°C

e. 18°C

f. -11°C

g. -9°C

h. 15°C

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question	answer
1	15°C
2	-7
3	23
4	£11
5	-2
6	-7°C
7	-£35
8	£600

Negative Numbers and Temperature – Application

Question	Answer
1	56 – (-89) = 145. The answer is 145°C
2	£1750 – £1346 = £404
3	18 – (-28) = 46. The temperature is 46°C.
4	-£25 – £134 = -£159. £159 overdrawn.
5	-31 – (-12) = - 19. The temperature falls by 19°C.
6	Total bills: £234.97 + £132.17 + £108.34 = £475.48 Balance: £456.75 - £475.48 = -£18.73. The balance is £18.73 overdrawn.

Highest Common Factor (HCF) – Practice Questions

1) 28, 12

Factors of 28 = 1, 2, 4, 7, 14, 28

Factors of 12 = 1, 2, 3, 4, 6, 12

GCF(28, 12) = 4

1) 16 and 24

10, 15, 18, 30, 45, 90

Highest Common factor = 8

), 15, 30

2) 50 and 30

12, 18, 36

Highest Common factor = 10

3, 27, 54

3) 36 and 48

Highest Common factor = 12

52

4) 48 and 32

Highest Common factor = 16

5) 28 and 42

Highest Common factor = 14

Lowest Common Multiples (LCM) – Explanation and Practice

A.	
1	Multiples of 3: **3, 6, 9, 12** Multiples of 4: **4, 8, 12** LCM of 3 and 4 = **12**
2	Multiples of 3: **3, 6, 9, 12, 15, 18, 21, 24, 27** Multiples of 9: **9, 18, 27** LCM of 3 and 9 = **9**
3	Multiples of 2: **2, 4, 6, 8, 10, 12, 14, 16, 18, 20** Multiples of 5: **5, 10, 15, 20, 25** LCM of 2 and 5 = **10**
4	Multiples of 8: **8, 16, 24, 32, 40, 48, 56, 64** Multiples of 4: **4, 8, 12, 16, 20, 24, 28, 32** LCM of 8 and 4 = **8**
5	Multiples of 6: **6, 12, 18, 24, 30, 36, 42, 48, 54** Multiples of 9: **9, 18, 27, 36, 45, 54, 63, 72, 81** LCM of 6 and 9 = **18**
6	Multiples of 10: **10, 20, 30, 40, 50, 60, 70, 80** Multiples of 5: **5, 10, 15, 20, 25, 30, 35, 40** LCM of 10 and 5 = **10**
7	Multiples of 11: **11, 22, 33, 44, 55, 66, 77, 88** Multiples of 6: **6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66** LCM of 11 and 6 = **66**
8	Multiples of 7: **7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91** Multiples of 13: **13, 26, 39, 52, 65, 78, 91** LCM of 7 and 13 = **91**
9	Multiples of 8: **8, 16, 24, 32, 40, 48** Multiples of 12: **12, 24, 36, 48, 60** LCM of 8 and 12 = **24**
10	Multiples of 25: **25, 50, 75, 100, 125, 150, 175, 200** Multiples of 40: **40, 80, 120, 160, 200** LCM of 25 and 40 = **200**

Verbal Reasoning – Technique Type 16 -19

TYPE SIXTEEN:

S	U
R	U
J	E
M	J
O	R
K	J
I	R
Q	K
C	X
MO	PR
MG	OE
MM	RO
IG	JF
DG	WS
SR	QT
PT	
IF	
GK	
HZ	
FT	

TYPE SEVENTEEN

2	4	1	5	3
2	5	4	3	1
5	3	2	1	4
2	5	3	4	1
3	1	4	5	2
5	4	3	2	1
1	2	3	4	5
5	3	2	1	4
1	3	5	2	4
2	1	3	5	4
1	4	2	3	5
1	2	4	3	5
3	2	1	4	5

truant
sample
dictate
thoughtless
augment

TYPE EIGHTEEN:

mechanic car garage
doctor patient measles
fire-engine house fire
blackbird egg nest
which car garage
lady spectacles handbag
which platform 6 p.m.
pupil books library
boy ball net
artist portrait easel
robber bank mask
when school sister
who ceiling now
boy scooter wall
boat two Tuesday
boy playground lunch

TYPE NINETEEN:

ELEVEN
SWIMMING
TALENT
TROUT
TOWER
LEAD
DESERT
PETALS
FUEL
SNOWDROP
TOMATO
THIRST
VIOLET
DIARY
ELBOW
CHILD
GOSLING
CHURCH
PALACE
WARDROBE

Non-verbal

Pointing, Shading and Line Types

Pointing — p.6-7

Warm Up

1. *a) rectangle b) circle c) star d) square e) triangle*

2. *a) down b) left c) up d) right e) down*

3. *Number of arrows pointing clockwise: 4*
Number of arrows pointing anticlockwise: 6

Find the Figure Like the First Three

4. **E**
In all figures, the arrow must point to the white square.

5. **C**
In all figures, the arrow must point to the diagonal hatching.

6. **E**
In all figures, the arrow must point to the shape with the most sides.

7. **C**
In all figures, two arrows must point left and two must point right.

Odd One Out

8. **D**
In all other figures, the arrow points into the big shape.

9. **C**
In all other figures, the arrow points clockwise.

10. **E**
In all other figures, the arrows on the outside of the shape point in the opposite direction to the arrow on the inside of the shape.

Complete the Pair

4. **D**
Grey circles turn black.

5. **C**
Solid lines become dashed, and dashed lines become solid.

6. **B**
The outline of the large shape becomes dotted. The inside shapes swap shadings.

7. **C**
The small white shapes on the left turn grey. The hatching rotates 90 degrees.

Complete the Square Grid

8. **B**
Working from left to right, the shape with the dashed outline moves one place clockwise in each grid square. The type of shape is the same across each row.

9. **B**
The figure in the bottom grid square of each column is made from the shape in the top grid square with the shading from the middle grid square.

10. **D**
The third grid square in each row contains the shapes from the first two grid squares in the row. The two shapes swap shadings.

Shading and Line Types — p.8-9

Warm Up

1. *a) 2 b) 3 c) 2 d) 3 e) 3 f) 3 g) 3*

2. *a) 1 b) 3 c) 4 d) 2 e) 1 f) 4 g) 1*

3. *Number of grey shapes: 5*
Number of spotted shapes: 6

Pointing — p.6-7

Warm Up

1. a) 2 b) 3 c) 4 d) 3 e) 2 f) 4 g) 2

2. a) yes b) no c) no d) no e) no f) yes g) yes

3. Most common direction: right
Type of shape: circle

Odd One Out

4. E
In all other figures, the arrow points at the white shape.

5. C
In all other figures, the arrow points clockwise.

6. D
In all other figures, the arrow points to a corner.

7. B
In all other figures, the arrow points away from the grey shape.

Find the Figure Like the First Two

8. D
All figures must have two arrows pointing down and one arrow pointing up.

9. B
In all figures, all inner lines must point exactly in the direction of the small black shape.

10. C
All figures must have two arrows pointing clockwise, and one arrow pointing anticlockwise.

Shading and Line Types — p.8-9

Warm Up

1. Number of arrows hatched the same, ignoring rotation: 3
Number of arrows hatched the same, correcting for rotation: 3

2. Number of shapes with the same outline: 4 (second, fourth, sixth and ninth figures).

3. Most common shading: grey

Find the Figure Like the First Three

4. D
In all figures, there must be exactly one black dot and one grey dot.

5. C
All figures must be hatched in the same direction — diagonally down to the left.

6. A
The hatching of the innermost shape must be made from the hatchings of both the outer shapes added together.

7. E
In all figures, the shape with the fewest sides must have a dashed outline, and the shape with the most sides must have a solid outline.

Complete the Hexagonal Grid

8. C
The shapes reflect across the middle of the hexagonal grid, keeping the same line type.

9. B
Going in a clockwise direction, the shading of the circle becomes the shading of the square in the next hexagon.

10. B
The outline of the outer circle alternates between solid and dashed. The shading of the inner circle is the same in hexagons on opposite sides of the middle hexagon.

Quick Lesson Recap

1) Work out the difference in time between 7:35pm and 9:55pm.
2 Hours 20 Minutes

2) Work out the difference in time between 6:25am and 1:35pm.

7 Hours 10 Minutes

3) Work out the difference in time between 11:12pm and 9:05am.
10 Hours 53 Minutes

(3 marks)

Now work out the Mean, Mode, Median and Range of the numbers in bold on the left-hand side. You will get 1 mark for each individual calculation.

		Mode	Range	Mean	Median
4)	**1, 8, 5, 4**	None	7	4.5	4.5

(4 marks)

5) $(6^2 - 2 \times 3) + 7 - 8 \div 2 = 33$