BROAD HORIZON
TUITION

11+ Tuition

Year 4

Week 16

ANSWERS

1. Workout the area and perimeter of this shape (2 marks)

25.5cm^2 23cm

2. Workout $\frac{5}{8}$ of 520

325

3. Workout $\frac{2}{9}$ of 243

54

4. Workout $\frac{2}{3}$ of 105

70

5. How much more than -21 is 9 ?

30

6. What is the median of 7, 11, 8 and 14

9.5

7. 11.2 × 100 =

1120

8. What is the LCM of 8 and 6 ?

24

9. What is the Highest Common Factor of 77 and 28

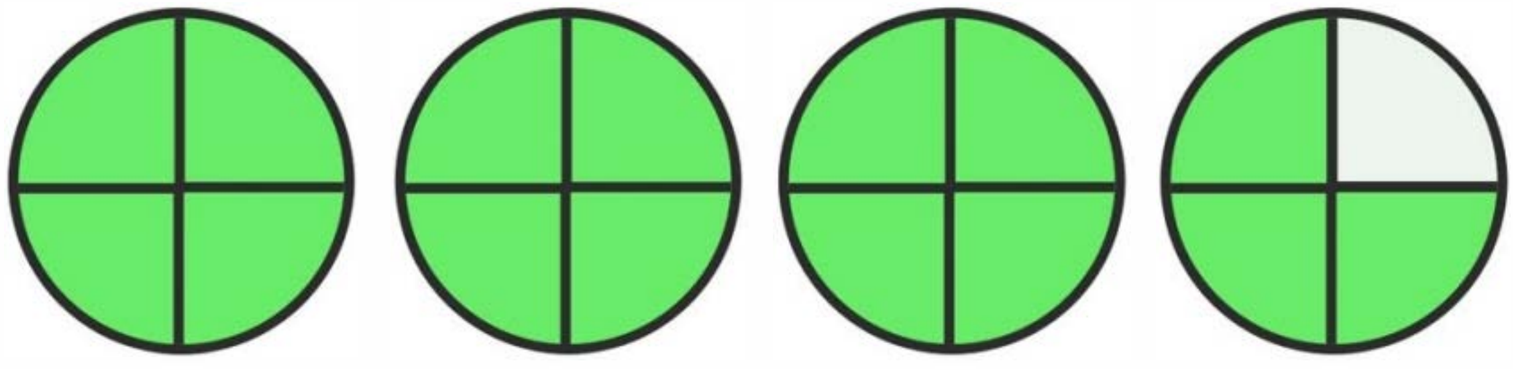
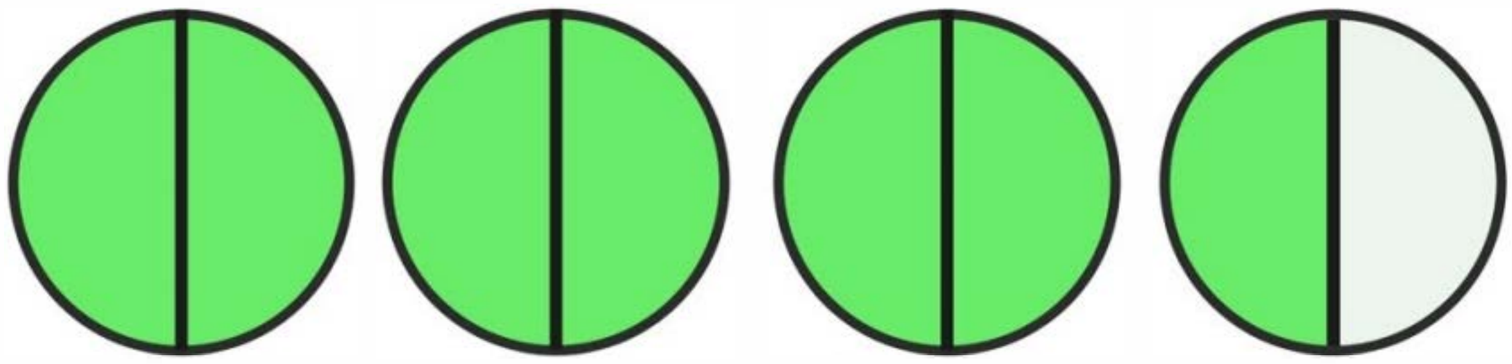
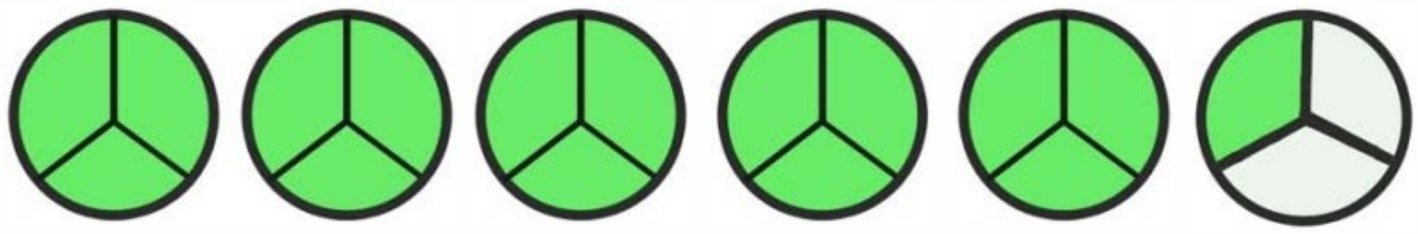
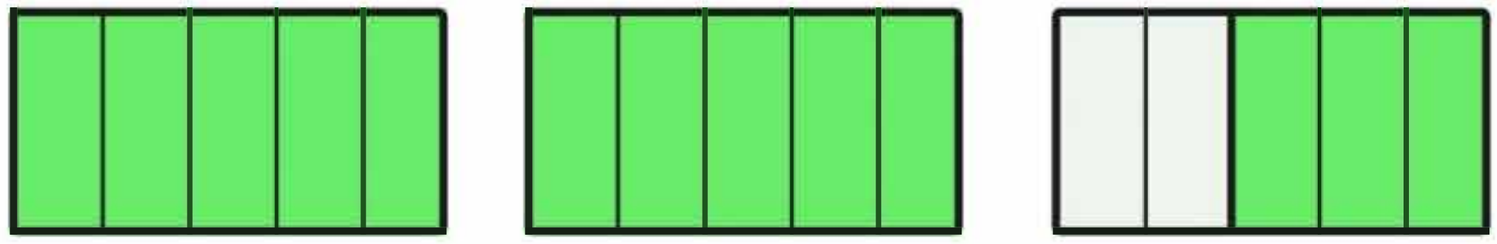
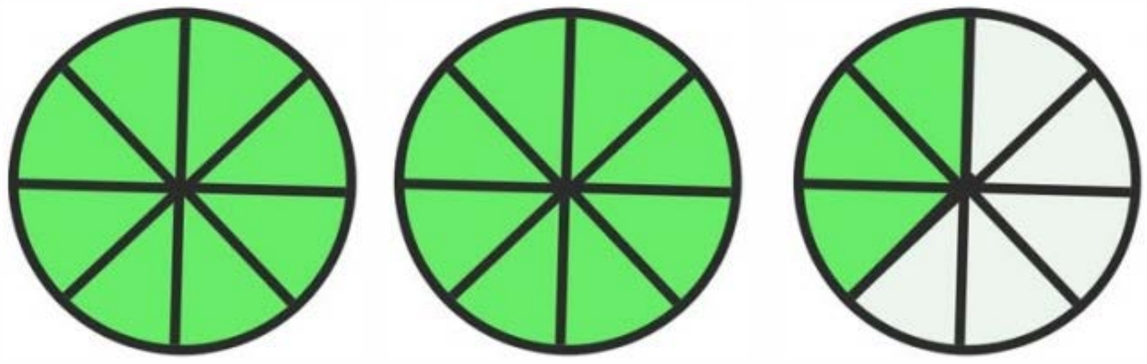
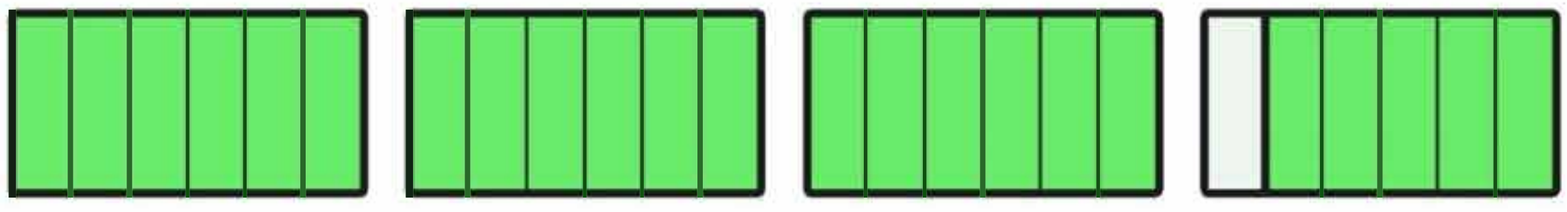
7

Exercise C

1. Infinite
2. Illuminate
3. Eject
4. Proceed
5. Midst
6. Influential
7. Trifling
8. Daring
9. Ointment
10. Nowadays

Improper Fractions

3) Write the improper fractions and mixed numbers represented by the shapes below.

	Improper Fraction		Mixed Number
a)	$\frac{15}{4}$		$3\frac{3}{4}$
b)	$\frac{7}{2}$		$3\frac{1}{2}$
c)	$\frac{16}{3}$		$5\frac{1}{3}$
d)	$\frac{13}{5}$		$2\frac{3}{5}$
e)	$\frac{19}{8}$		$2\frac{3}{8}$
f)	$\frac{23}{6}$		$3\frac{5}{6}$

Improper Fractions Answers

1) Ring or write down any mixed number that is equivalent to the improper fraction.

$\frac{13}{3}$	$2\frac{2}{3}$	$4\frac{1}{3}$	$5\frac{1}{3}$	$4\frac{2}{3}$	$2\frac{2}{3}$
$\frac{14}{4}$	$3\frac{2}{4}$	$4\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{4}$	$2\frac{1}{2}$
$\frac{16}{10}$	$1\frac{4}{10}$	$1\frac{2}{5}$	$1\frac{3}{5}$	$1\frac{6}{10}$	$1\frac{8}{10}$
$\frac{20}{6}$	$2\frac{2}{3}$	$3\frac{2}{6}$	$3\frac{2}{3}$	$2\frac{1}{3}$	$3\frac{1}{3}$
$\frac{19}{5}$	$4\frac{1}{5}$	$4\frac{2}{5}$	$3\frac{4}{5}$	$3\frac{3}{5}$	$5\frac{1}{5}$

2) Write the following improper fractions as mixed numbers.

a) $\frac{22}{3} = 7\frac{1}{3}$

b) $\frac{5}{2} = 2\frac{1}{2}$

c) $\frac{21}{6} = 3\frac{1}{2}$ or $3\frac{3}{6}$

d) $\frac{34}{10} = 3\frac{4}{10}$ or $3\frac{2}{5}$

e) $\frac{31}{4} = 7\frac{3}{4}$

f) $\frac{14}{5} = 2\frac{4}{5}$

g) $\frac{16}{3} = 5\frac{1}{3}$

h) $\frac{17}{8} = 2\frac{1}{8}$

i) $\frac{22}{9} = 2\frac{4}{9}$

j) $\frac{27}{12} = 2\frac{3}{12}$

k) $\frac{23}{10} = 2\frac{3}{10}$

l) $\frac{19}{4} = 4\frac{3}{4}$

m) $\frac{19}{7} = 2\frac{5}{7}$

n) $\frac{21}{5} = 4\frac{1}{5}$

o) $\frac{30}{6} = 5$

3) Answer these questions, writing your answer as mixed numbers.

a) 27 children sit at tables of 6, filling all the tables where possible. Express how the tables are filled using a mixed number.

$4\frac{3}{6}$ or $4\frac{1}{2}$

b) A teacher asks 2 children to sort 73 tennis balls into baskets of 10 balls, filling the baskets where possible. Express how the baskets are filled using a mixed number.

$7\frac{3}{10}$

c) A pizza van sells pizza slices. Each slice is one quarter of a pizza. At the end of the day the pizza seller works out how many pizza's he has left. On one day he has 9 pieces. How many pizzas does he have left?

$2\frac{1}{4}$

d) Write some of your own questions for which the answer is a mixed number.

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Teacher : _____ Date : _____

Adding Fractions

1) $\frac{9}{21} + \frac{1}{7} = \frac{9}{21} + \frac{3}{21} = \frac{12}{21} = \frac{4}{7}$

2) $\frac{3}{5} + \frac{7}{20} = \frac{12}{20} + \frac{7}{20} = \frac{19}{20}$

3) $\frac{6}{7} + \frac{11}{21} = \frac{18}{21} + \frac{11}{21} = \frac{29}{21} = 1\frac{8}{21}$

4) $\frac{1}{16} + \frac{5}{8} = \frac{1}{16} + \frac{10}{16} = \frac{11}{16}$

5) $\frac{6}{18} + \frac{4}{6} = \frac{6}{18} + \frac{12}{18} = \frac{18}{18} = 1$

6) $\frac{3}{12} + \frac{1}{24} = \frac{6}{24} + \frac{1}{24} = \frac{7}{24}$

7) $\frac{6}{13} + \frac{10}{26} = \frac{12}{26} + \frac{10}{26} = \frac{22}{26} = \frac{11}{13}$

8) $\frac{11}{26} + \frac{1}{13} = \frac{11}{26} + \frac{2}{26} = \frac{13}{26} = \frac{1}{2}$

9) $\frac{2}{27} + \frac{3}{9} = \frac{2}{27} + \frac{9}{27} = \frac{11}{27}$

10) $\frac{11}{12} + \frac{3}{4} = \frac{11}{12} + \frac{9}{12} = \frac{20}{12} = \frac{5}{3} = 1\frac{2}{3}$

Name : _____ Score : _____

Teacher : _____ Date : _____

Adding Fractions

1) $\frac{2}{8} + \frac{3}{4} = \frac{2}{8} + \frac{6}{8} = \frac{8}{8} = 1$

2) $\frac{11}{20} + \frac{2}{5} = \frac{11}{20} + \frac{8}{20} = \frac{19}{20}$

3) $\frac{3}{6} + \frac{3}{5} = \frac{15}{30} + \frac{18}{30} = \frac{33}{30} = \frac{11}{10} = 1\frac{1}{10}$

4) $\frac{3}{4} + \frac{5}{6} = \frac{9}{12} + \frac{10}{12} = \frac{19}{12} = 1\frac{7}{12}$

5) $\frac{3}{4} + \frac{9}{16} = \frac{12}{16} + \frac{9}{16} = \frac{21}{16} = 1\frac{5}{16}$

6) $\frac{5}{12} + \frac{1}{3} = \frac{5}{12} + \frac{4}{12} = \frac{9}{12} = \frac{3}{4}$

7) $\frac{1}{11} + \frac{12}{22} = \frac{2}{22} + \frac{12}{22} = \frac{14}{22} = \frac{7}{11}$

8) $\frac{10}{21} + \frac{1}{7} = \frac{10}{21} + \frac{3}{21} = \frac{13}{21}$

9) $\frac{2}{5} + \frac{1}{3} = \frac{6}{15} + \frac{5}{15} = \frac{11}{15}$

10) $\frac{1}{3} + \frac{3}{6} = \frac{2}{6} + \frac{3}{6} = \frac{5}{6}$

Name : _____ Score : _____

Answer key

Adding Fractions

Pro pe r: S1

1) $\frac{4}{7} + 3 =$ $3\frac{4}{7} = \frac{25}{7}$

2) $5 + \frac{8}{13} =$ $5\frac{8}{13} = \frac{73}{13}$

3) $\frac{3}{16} + 6 =$ $6\frac{3}{16} = \frac{99}{16}$

4) $2 + \frac{5}{9} =$ $2\frac{5}{9} = \frac{23}{9}$

5) $8 + \frac{1}{3} =$ $8\frac{1}{3} = \frac{25}{3}$

6) $\frac{9}{10} + 7 =$ $7\frac{9}{10} = \frac{79}{10}$

7) $\frac{5}{8} + 4 =$ $4\frac{5}{8} = \frac{37}{8}$

8) $9 + \frac{3}{4} =$ $9\frac{3}{4} = \frac{39}{4}$

9) $\frac{2}{5} + 2 =$ $2\frac{2}{5} = \frac{12}{5}$

10) $\frac{1}{12} + 8 =$ $8\frac{1}{12} = \frac{97}{12}$

11) $7 + \frac{6}{11} =$ $7\frac{6}{11} = \frac{83}{11}$

12) $\frac{2}{3} + 6 =$ $6\frac{2}{3} = \frac{20}{3}$

13) $\frac{1}{2} + 9 =$ $9\frac{1}{2} = \frac{19}{2}$

14) $3 + \frac{14}{19} =$ $3\frac{14}{19} = \frac{71}{19}$

Name : _____ Score : _____

Answer key

Adding Fractions

Improper: S1

1) $7 + \frac{8}{3} = 9\frac{2}{3} = \frac{29}{3}$

2) $2 + \frac{25}{18} = 3\frac{7}{18} = \frac{61}{18}$

3) $\frac{22}{15} + 3 = 4\frac{7}{15} = \frac{67}{15}$

4) $\frac{13}{10} + 8 = 9\frac{3}{10} = \frac{93}{10}$

5) $\frac{11}{8} + 9 = 10\frac{3}{8} = \frac{83}{8}$

6) $\frac{9}{5} + 6 = 7\frac{4}{5} = \frac{39}{5}$

7) $5 + \frac{9}{4} = 7\frac{1}{4} = \frac{29}{4}$

8) $4 + \frac{13}{6} = 6\frac{1}{6} = \frac{37}{6}$

9) $\frac{24}{17} + 2 = 3\frac{7}{17} = \frac{58}{17}$

10) $\frac{19}{12} + 7 = 8\frac{7}{12} = \frac{103}{12}$

11) $\frac{10}{9} + 4 = 5\frac{1}{9} = \frac{46}{9}$

12) $9 + \frac{4}{3} = 10\frac{1}{3} = \frac{31}{3}$

13) $8 + \frac{7}{2} = 11\frac{1}{2} = \frac{23}{2}$

14) $3 + \frac{16}{7} = 5\frac{2}{7} = \frac{37}{7}$

Name : _____

Score : _____

Answer Key

Adding Unlike Fractions

Proper: S1

1) $\frac{5}{6} + \frac{2}{7} + \frac{1}{2} = \frac{68}{42} = \frac{34}{21}$

2) $\frac{11}{16} + \frac{10}{12} + \frac{6}{8} = \frac{109}{48}$

3) $\frac{2}{3} + \frac{13}{15} + \frac{11}{12} = \frac{147}{60} = \frac{49}{20}$

4) $\frac{9}{10} + \frac{7}{8} + \frac{3}{4} = \frac{101}{40}$

5) $\frac{1}{2} + \frac{3}{4} + \frac{5}{6} = \frac{25}{12}$

6) $\frac{2}{3} + \frac{8}{9} + \frac{4}{5} = \frac{106}{45}$

7) $\frac{9}{14} + \frac{4}{7} + \frac{11}{28} = \frac{45}{28}$

8) $\frac{3}{5} + \frac{2}{3} + \frac{5}{6} = \frac{63}{30} = \frac{21}{10}$

9) $\frac{16}{20} + \frac{8}{10} + \frac{4}{5} = \frac{48}{20} = \frac{12}{5}$

10) $\frac{8}{12} + \frac{1}{4} + \frac{13}{24} = \frac{35}{24}$

11) $\frac{2}{3} + \frac{1}{2} + \frac{5}{7} = \frac{79}{42}$

12) $\frac{14}{36} + \frac{5}{18} + \frac{7}{9} = \frac{52}{36} = \frac{13}{9}$

13) $\frac{12}{16} + \frac{6}{8} + \frac{3}{4} = \frac{36}{16} = \frac{9}{4}$

14) $\frac{4}{6} + \frac{1}{2} + \frac{6}{8} = \frac{46}{24} = \frac{23}{12}$

Name : _____ Score : _____

Answer Key

Adding Unlike Fractions

All fractions: S1

1) $5\frac{17}{20} + \frac{11}{5} + \frac{3}{10} = \mathbf{5\frac{67}{20} = 8\frac{7}{20}}$

2) $\frac{5}{3} + \frac{21}{18} + \frac{10}{9} = \mathbf{\frac{71}{18}}$

3) $\frac{7}{8} \quad \frac{3}{4} \quad \frac{5}{12} = \mathbf{\frac{49}{24}}$

4) $1\frac{1}{2} + 3\frac{5}{6} + 2\frac{3}{4} = \mathbf{6\frac{25}{12} = 8\frac{1}{12}}$

5) $\frac{2}{3} + \frac{4}{9} + \frac{1}{6} = \mathbf{\frac{23}{18}}$

6) $\frac{8}{7} + 3\frac{9}{21} + 1\frac{11}{42} = \mathbf{4\frac{77}{42} = 5\frac{5}{6}}$

7) $4\frac{7}{15} + 2\frac{1}{10} + 1\frac{9}{20} = \mathbf{7\frac{61}{60} = 8\frac{1}{60}}$

8) $\frac{5}{6} + \frac{45}{48} + \frac{13}{8} = \mathbf{\frac{163}{48}}$

9) $\frac{2}{3} + \frac{1}{2} + \frac{7}{9} = \mathbf{\frac{35}{18}}$

10) $\frac{5}{12} + 4\frac{3}{16} + \frac{5}{4} = \mathbf{4\frac{89}{48} = 5\frac{41}{48}}$

11) $\frac{6}{5} + \frac{5}{4} + \frac{9}{8} = \mathbf{\frac{143}{40}}$

12) $4\frac{1}{2} + 2\frac{3}{4} + 1\frac{1}{6} = \mathbf{7\frac{17}{12} = 8\frac{5}{12}}$

13) $2\frac{1}{6} + 1\frac{7}{36} + \frac{17}{12} = \mathbf{3\frac{64}{36} = 4\frac{7}{9}}$

14) $\frac{13}{9} + \frac{19}{18} + \frac{7}{3} = \mathbf{\frac{87}{18}}$

Name : _____ Score : _____

Answer Key

Adding Unlike Fractions

Proper / Mixed: S1

1) $4\frac{1}{2} + 1\frac{3}{4} + 2\frac{5}{6} = 7\frac{25}{12} = 9\frac{1}{12}$

2) $\frac{5}{9} + \frac{2}{3} + \frac{1}{6} = \frac{25}{18}$

3) $\frac{3}{5} + 6\frac{8}{10} + \frac{9}{15} = 6\frac{60}{30} = 8$

4) $1\frac{3}{6} + \frac{3}{8} + 2\frac{1}{2} = 3\frac{33}{24} = 4\frac{3}{8}$

5) $2\frac{5}{7} + 4\frac{1}{2} + \frac{10}{14} = 6\frac{27}{14} = 7\frac{13}{14}$

6) $9\frac{2}{3} + \frac{9}{18} + \frac{4}{6} = 9\frac{33}{18} = 10\frac{5}{6}$

7) $\frac{14}{20} + \frac{4}{5} + \frac{2}{4} = \frac{40}{20} = 2$

8) $3\frac{1}{9} + 2\frac{5}{6} + 8\frac{7}{12} = 13\frac{55}{36} = 14\frac{19}{36}$

9) $8\frac{2}{6} + 7\frac{1}{2} + 6\frac{2}{3} = 21\frac{9}{6} = 22\frac{1}{2}$

10) $\frac{7}{8} + \frac{1}{2} + \frac{1}{2} = \frac{15}{8}$

11) $\frac{13}{18} + \frac{1}{2} + 1\frac{5}{9} = 1\frac{32}{18} = 2\frac{7}{9}$

12) $\frac{9}{15} + 4\frac{3}{5} + 3\frac{2}{3} = 7\frac{28}{15} = 8\frac{13}{15}$

13) $1\frac{1}{2} + 2\frac{1}{4} + 3\frac{1}{8} = 6\frac{7}{8}$

14) $\frac{5}{6} + \frac{3}{4} + \frac{16}{20} = \frac{143}{60}$

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Subtracting Fractions

1) $\frac{8}{12} - \frac{3}{5} = \frac{40}{60} - \frac{36}{60} = \frac{4}{60} = \frac{1}{15}$

2) $\frac{3}{4} - \frac{3}{8} = \frac{6}{8} - \frac{3}{8} = \frac{3}{8}$

3) $\frac{3}{4} - \frac{7}{12} = \frac{9}{12} - \frac{7}{12} = \frac{2}{12} = \frac{1}{6}$

4) $\frac{9}{10} - \frac{2}{3} = \frac{27}{30} - \frac{20}{30} = \frac{7}{30}$

5) $\frac{12}{13} - \frac{6}{26} = \frac{24}{26} - \frac{6}{26} = \frac{18}{26} = \frac{9}{13}$

6) $\frac{2}{5} - \frac{4}{20} = \frac{8}{20} - \frac{4}{20} = \frac{4}{20} = \frac{1}{5}$

7) $\frac{11}{13} - \frac{3}{4} = \frac{44}{52} - \frac{39}{52} = \frac{5}{52}$

8) $\frac{10}{11} - \frac{13}{22} = \frac{20}{22} - \frac{13}{22} = \frac{7}{22}$

9) $\frac{6}{9} - \frac{9}{27} = \frac{18}{27} - \frac{9}{27} = \frac{9}{27} = \frac{1}{3}$

10) $\frac{5}{7} - \frac{1}{4} = \frac{20}{28} - \frac{7}{28} = \frac{13}{28}$

Comprehension Test 17

Q1 *B*

Simile

Q2 *E*

Eliminated

Q3 *B*

Unhappy

Q4 *A*

Verb

Q5 *B*

His imagination made things seem very alarming

Q6 *E*

The cat jumping on the bench

Q7 *D*

Leather and the neighbour

Q8 *B*

You make it with thoughts

Q9 *B*

Amused because it seemed to be true

Q10 *E*

Imagination can be a good thing or a bad thing

Comprehension Test 18

Q1 *B*

Crowded

Q2 *D*

Look at the roof of the observatory

Q3 *E*

A bright red time ball

Q4 *E*

It falls down the mast

Q5 *C*

You would have to wait 24 hours before you could check the time again

Q6 *A*

They used public sundials

Q7 *B*

There was a variation in time from east to west

Q8 *A*

Placed

Q9 *C*

The observatory had a clock fixed to the gates

Q10 *A*

In Greenwich

TYPE FOURTEEN:

sparkle
parade
daisy
stronger
refine
failure
sorceror
travel
trail natal
curse rescue
trample linear
notes stone
soap strap
facet magnet
lease class
shopper stoop
metal steal
steak freak
motion spoon
credit tread

Test 14

1. he stuck his book back together with tape
2. the black horse won the race
3. who is your best friend
4. the day had ended well
5. the greedy boy ate all the biscuits
6. I trod quietly so no-one would hear me
7. I knew this would end badly
8. you are new here aren't you
9. the lonely woman looked sadly out of the window
10. orangutans make nests in trees

wers

Cloze Wordbank Test 3

Q1 ***F***

address

Q2 ***B***

buttonhole

Q3 ***G***

procedure

Q4 ***D***

marvel

Q5 ***C***

courageous

Q6 ***J***

ensuring

Q7 ***I***

precious

Q8 ***H***

raids

Q9 ***E***

impending

Q10 ***A***

safety

Cloze Wordbank Test 4

Q1 ***A***

detector

Q2 ***H***

metal

Q3 ***J***

crumbly

Q4 ***E***

anticipation

Q5 ***G***

quickening

Q6 ***I***

trowel

Q7 ***D***

fingernail

Q8 ***C***

protruding

Q9 ***F***

object

Q10 ***B***

cascading

3. **A**

There should be two blocks next to each other at the front of the figure, which rules out options B, C and D.

4. **D**

There should be four blocks visible from above, which rules out options A and B. The figure is three blocks wide, which rules out option C.

Section 6 — Find the Figure Like the First Three

1. **B**

All teacups must have one handle. If all the cups are rotated so the saucer is at the bottom, the handle must be on the right-hand side.

2. **A**

All figures must have circles in front of each corner of the shape.

3. **D**

In all figures, the stalk must curve to the right and the flower must have four petals. Three petals must have the same shading, and the fourth must have a different shading.

4. **D**

All figures are identical apart from rotation.

5. **D**

All figures must have one grey shape and one white shape.

ASSESSMENT TEST 8

Section 1 — Complete the Series

1. **B**

An extra triangle is added to the right in each series square.

2. **D**

The bird's position inside the series square changes in the order: top, middle, bottom, middle, top. The bird always faces the same direction and has the same shading.

3. **C**

In each series square, the grey circle moves two places clockwise around the pentagon.

4. **C**

The shading in the left half of the shield moves to the right half of the shield in the next series square. A new type of shading appears in the left half. The shield's rotation is always the same.

5. **C**

The figure rotates 90 degrees clockwise in each series square.

Section 2 — Reflect the Figure

1. **C**

Options A and B are the wrong shape.
Option D is a 90 degree anticlockwise rotation.

2. **D**

Options A and C have the wrong shading.
In option B, the lines have not been reflected.

3. **D**

Option A has the wrong shading. Option B has been reflected, but the bottom triangles have also been reflected downwards.
In option C, the tail is the wrong shading and has been rotated.

4. **B**

Option A is a downwards reflection and has the wrong shading. Option C is a 90 degree clockwise rotation and has the wrong shading. Option D is a reflection, but the middle rings have swapped positions.

5. **A**

In option B, the black and grey striped shading has swapped. Option C has the wrong shading. Option D has not been reflected, but the white and grey stripes in the top half of the figure have swapped shadings.

Section 3 — Look at the Figure from the Right

1. **D**

There should be a grey cube at the top of the figure, which rules out options A, B and C.

2. **B**

On the right of the figure there should be a white block two cubes long lying on its side. This rules out options A and C. There should be another white block at the back of the figure on the right-hand side, which rules out option D.

3. **C**

There should be a white block, three cubes long, at the top of the figure, which rules out options A and B. There should be one white cube at the front of the figure, which rules out option D.

4. **A**

The grey block lying on its side should be on the left-hand side of the figure, which rules out options B, C and D.

Section 4 — Complete the Pair

1. **C**

The shape moves down and another identical shape appears above it. They both become hatched.

2. **D**

The long white shapes get shorter, and the short white shapes get longer.

3. **A**

The figure reflects across and the grey shapes turn white.

4. **D**

The small shapes move inside the large shape.
The large shape swaps shadings with the two small shapes.

5. **C**

The figure rotates 90 degrees clockwise.

Section 5 — Rotate the Figure

1. C

The figure has been rotated 90 degrees clockwise. Options A and B are the wrong shape. Option D is a reflection.

2. B

The figure has been rotated 270 degrees clockwise (or 90 degrees anticlockwise). The trophy in option A is the wrong shape. In options C and D, the ribbons have the wrong shadings.

3. A

The figure has been rotated 180 degrees. In option B, there are two arrows missing and the bird's head is black. In option C, all the arrowheads have the wrong shading. Option D is a rotated reflection.

4. D

The figure has been rotated 180 degrees. Option A is a rotated reflection. Option B has the wrong shading. Option C is the wrong shape.

5. A

The figure has been rotated 180 degrees. Option B is a reflection. Option C has the wrong shading. In option D, the arrows are pointing in the same direction.

Section 6 — Complete the Grid

1. D

Working from left to right, the white shape takes the shading of the large shape. The large shape turns white. The dashed and solid outlines swap over.

2. E

Working from left to right, the whole figure reflects across. The grey shapes turn white and the white shapes turn grey.

3. B

Each figure (white star, black triangle and hatched square) only appears once in each row and column.

4. B

Working from left to right, the cross rotates 45 degrees clockwise and the shapes move to stay in the same part of the cross. One extra shape turns black in each grid square.

Quick Lesson Recap

1. $\frac{2}{6} + \frac{5}{8} =$

23/24

2. $\frac{3}{7} + \frac{11}{14} =$

17/14

3. $\frac{5}{8} + \frac{7}{24} =$

22/24

4. $\frac{4}{7} + 6 =$

46/7

5. $12 - 1\frac{7}{9} =$

11 and 2/9

6. $5 - \frac{2}{5} =$

4 and 3/5

7. $37 \div 1000 =$

0.037

8. $8^2 + 25 \div 5 - (3^2 - 7)$

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Vocabulary 14

Exercise A

1. Erratic
2. Obscure
3. Immature
4. Perspective
5. Scribble
6. Hilarious
7. Retaliate
8. Inedible
9. Impersonate
10. Light-hearted

Exercise B

1. Inedible
2. Impersonate
3. Light-hearted
4. Erratic
5. Immature
6. Hilarious
7. Retaliate
8. Perspective
9. Scribble
10. Obscure