BROAD HORIZON
TUITION

11+ Tuition

Year 5 - Online

Week 9

ANSWERS

Starter Task – Quick Revision

Workout the volume of the shapes with the following dimensions

	Length	Width	Height	Volume
1)	5cm	3cm	2cm	$30cm^3$
2)	12mm	2mm	3cm	$0.72cm^3$ or $720mm^3$
3)	0.5m	11m	5cm	$2.75m^3$ or $275000cm^3$

Workout the following:

		Mode	Range	Mean	Median
4)	7, 2, 7, 3	7	5	4.75	5
5)	15, 4, 4	4	11	7.666	4

(8 marks)

6) Round 15.5955 to two decimal places

15.6

7) Round 24,321 to the nearest thousand

24,000

8) Add 87 minutes to 10:25am

11:52am

9) $(9 - 7 + 3)^2 + 8 \times 3 \div 2^3$ **(2 marks)**

28

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. $11.2 \times 100 =$

1120

8. What is the LCM of 8 and 6 ?

24

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

7

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Working with fractions and whole numbers.

1) Find $\frac{4}{8}$ of 224 =
112

2) Find $\frac{3}{4}$ of 36 =
27

3) Find $\frac{1}{5}$ of 20 =
4

4) Find $\frac{2}{3}$ of 48 =
32

5) Find $\frac{6}{10}$ of 300 =
180

6) Find $\frac{5}{6}$ of 270 =
225

7) Find $\frac{3}{6}$ of 180 =
90

8) Find $\frac{4}{5}$ of 120 =
96

9) Find $\frac{11}{12}$ of 924 =
847

10) Find $\frac{1}{8}$ of 48 =
6

11) Find $\frac{1}{4}$ of 20 =
5

12) Find $\frac{3}{5}$ of 180 =
108

13) Find $\frac{5}{8}$ of 400 =
250

14) Find $\frac{1}{4}$ of 36 =
9

15) Find $\frac{3}{12}$ of 396 =
99

16) Find $\frac{3}{10}$ of 90 =
27

17) Find $\frac{2}{3}$ of 12 =
8

18) Find $\frac{5}{12}$ of 660 =
275

19) Find $\frac{1}{3}$ of 36 =
12

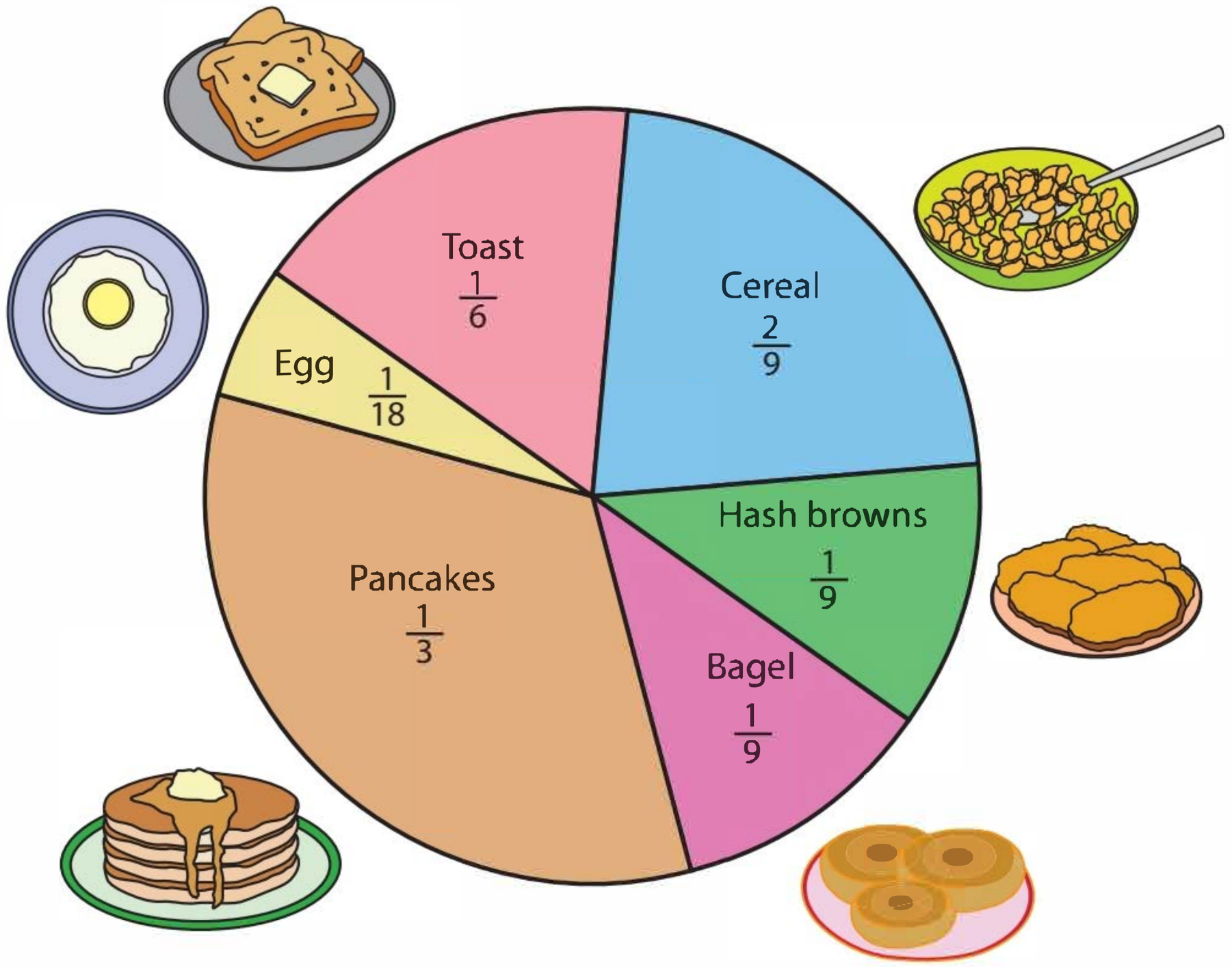
20) Find $\frac{5}{6}$ of 120 =
100

Name : _____ Score : _____

Answer Key

Pie Graph - Favorite Breakfast

108 people were surveyed on their favorite breakfast. The pie graph is made according to their responses. Use the pie graph and answer the questions.



1. How many people like to eat cereal for breakfast? **24**

2. Which food got half the number of votes of bagel? **Egg**

3. How many people would like to have toast? **18**

4. How many people did not vote for pancakes? **72**

5. Which morning meal is the favorite choice of 18 people from the survey? **Toast**

Multi- Step Word Problems
Fractions of Amounts **Answers**

1. Sarah entered a 100-word story competition. She wrote her story over two evenings. On the first evening, she wrote $\frac{6}{10}$ and on the second evening she wrote the rest.
   a. How many words did she write on the first evening? **60 words**
   b. How many words did she write on the second evening and what fraction was this? **40 words = $\frac{4}{10}$ or $\frac{2}{5}$**

2. Two families, the Smiths and the Taylors, go to a restaurant for a meal. At the end of the night, when they pay their £100 bill, they use a 50% off voucher, which halves their bill. They then split the remaining amount equally between the two families.
   a. How much does the bill come to after the discount voucher? **£50**
   b. How much of the remaining bill do each family pay? **£25 each**

3. There were 120 school children going on a school residential trip. There were 2 coaches, each carrying ½ of the children. On coach B, $\frac{1}{6}$ of the children had medication with them.
   a. How many children were on each coach? **60 children on each coach**
   b. How many children had medication on coach B? **10 children**

4. A retired couple won £400 on the lottery. They decided to give ¾ to their family and to spend ¼ on a weekend away for themselves.
   a. How much money did the couple give to their family? **£300**
   b. How much money did they spend on their weekend away? **£100**

5. Jane watched a film that was 1 hour long. $\frac{5}{6}$ of the way through the film, the doorbell rang. She paused the film to answer the door and it was the postman with a parcel.
   a. How many minutes of the film had she watched before the postman arrived? **50 minutes**
   b. How many minutes of the film did she have left to watch? **10 minutes**

6. A cake maker is icing a wedding cake that needs three different sized tiers. The icing weighs 2000g. He uses $\frac{6}{10}$ of the icing for the bottom tier, $\frac{3}{10}$ of the icing for the middle tier and $\frac{1}{10}$ of the icing for the top tier.
   a. What is the weight of icing in the bottom tier? **1200g**
   b. What is the weight of icing in the middle tier? **600g**
   c. What is the weight of icing in the top tier? **200g**

7. A dressmaker has 10m of fabric to make an outfit. He makes a bag with $\frac{1}{10}$ of the fabric, a skirt with ½ of the fabric and a top with the rest.
   a. How much fabric is used for the bag? **1m**
   b. How much fabric is used for the skirt? **5m**
   c. How much fabric is used for the top and what is this as a fraction of the total fabric? **4m = $\frac{4}{10}$ or $\frac{2}{5}$**

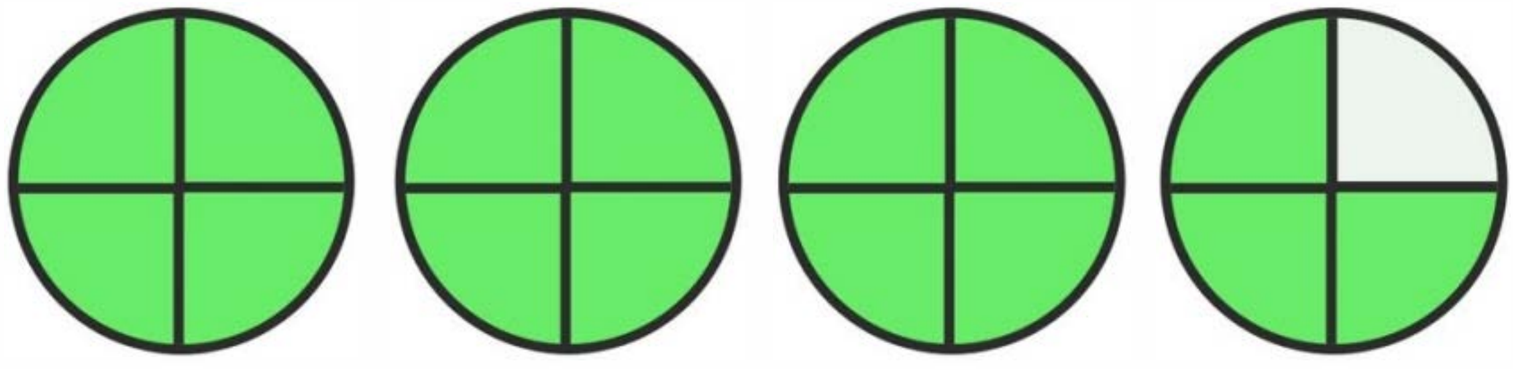
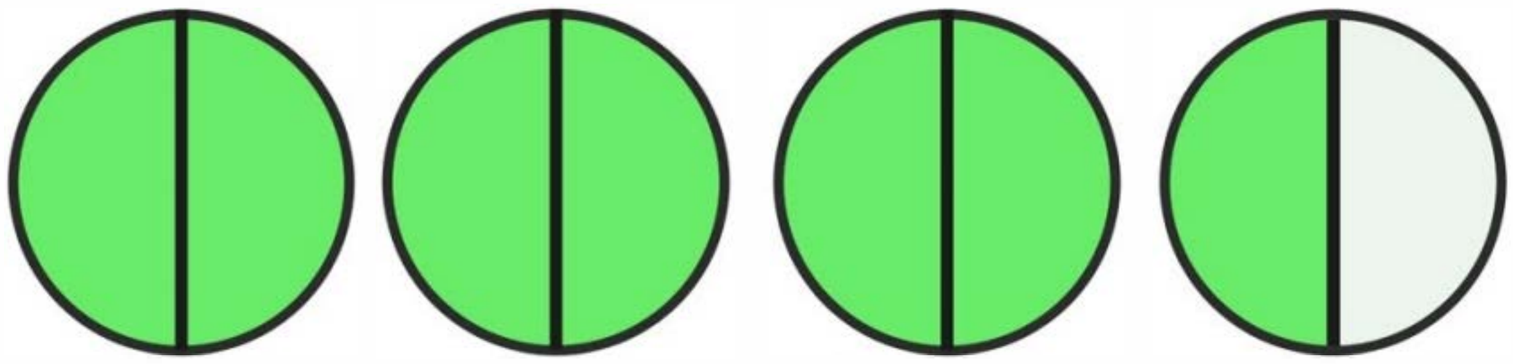
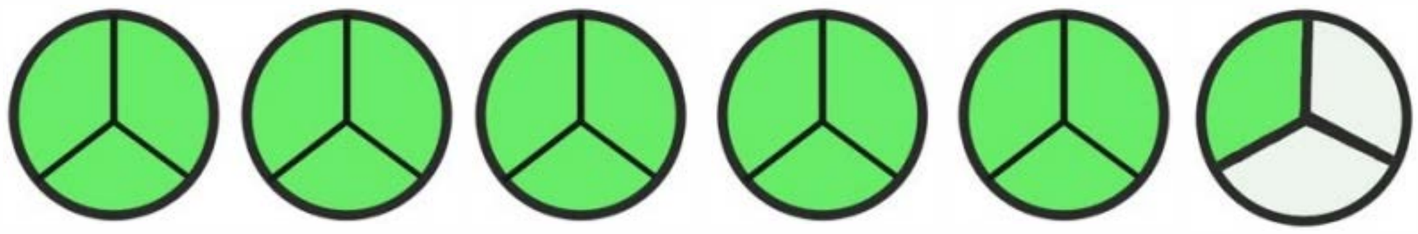
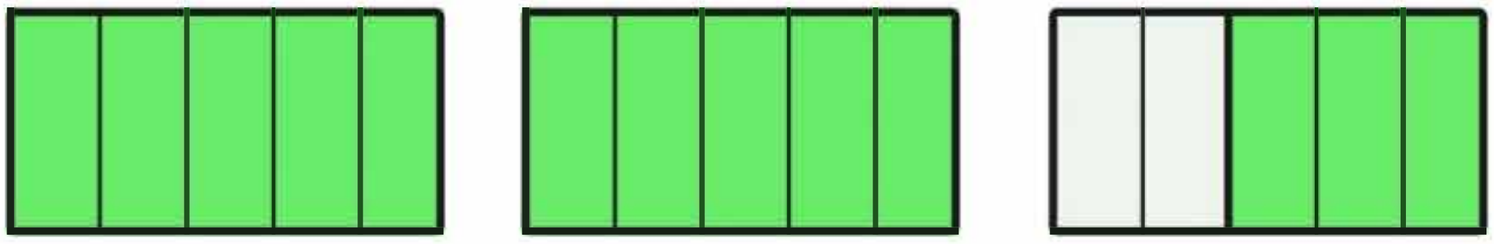
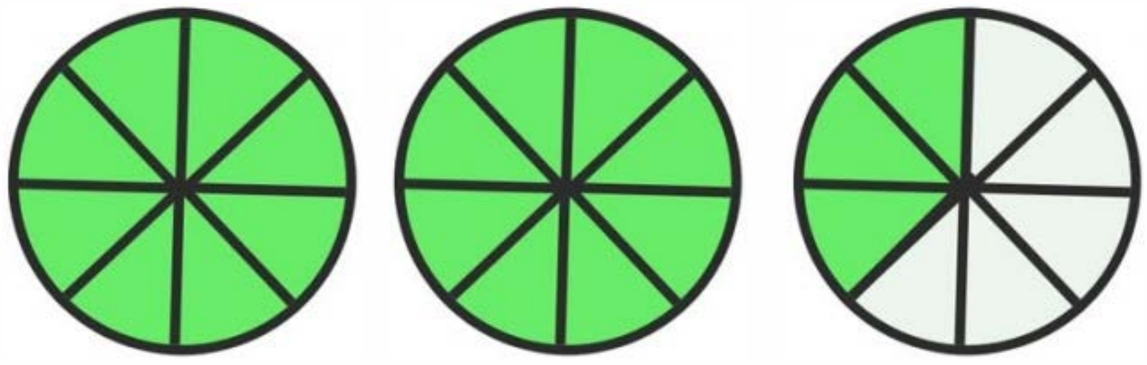
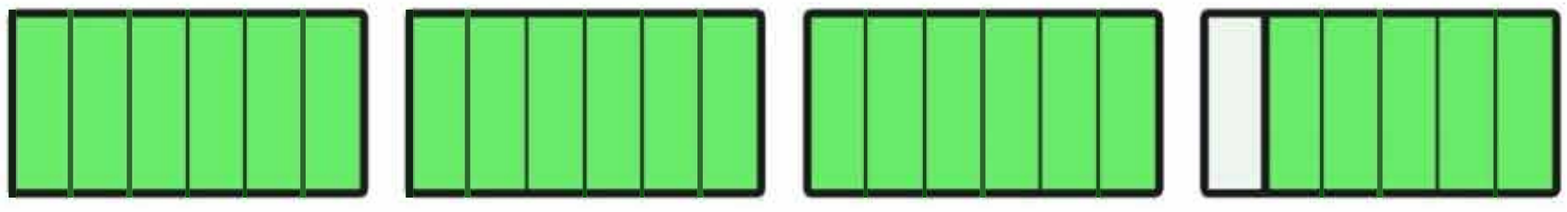
8. A chef ordered twenty-four eggs for her restaurant. $\frac{1}{12}$ of the eggs were used for a chocolate brownie special and ¼ of the eggs were used for cooked breakfasts. From the remainder, ½ of the eggs were used for the meringue in an Eton Mess pudding.
   a. How many eggs were used for the chocolate brownie? **2**
   b. How many eggs were used for the breakfasts? **6**
   c. How many eggs were used for the Eton Mess? **8**
   d. How many eggs were left? **8**

9. At the county running championships, a school won 12 medals. ½ of the medals were gold, ⅓ of the medals were silver and $\frac{1}{6}$ of the medals were bronze.
   a. How many medals were gold? **6**
   b. How many medals were silver? **4**
   c. How many medals were bronze? **2**

10. At the local triathlon, which includes cycling, running and swimming, competitors travel a total distance of 15km. ⅔ of the distance is cycling.
    a. How far do the competitors cycle? **10km**
    b. What distance is left for running and swimming? **5km**

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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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 : _____

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

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

TYPE THIRTEEN:

car
36
orange
sergeant
toddler
cup
3.15 a.m.
July
hour
pentagon
£4.40
tug
Wednesday
366
fifth
dog
word
river
shopping bag
trio

Verbal Reasoning - Difficult Vocab

4) Army Ranks:

12) In order of size:

i) Kayak

ii) Canoe

iii) Tugboat

iv) Liner

v) Aircraft Carrier

18) In order of size:

i) Brook – A small natural watercourse

ii) Source - Starting place of a river or stream

iii) River – A natural flowing watercourse, larger than a brook or stream.

iv) Estuary – A semi-enclosed body of water where freshwater meets the oceans saltwater.

v) Sea – A large expanse of seawater that is part of an ocean, partially enclosed by land

20)

Quintet – A musical group with 5 performers or instrumentalists

Quartet – A musical group with 4 performers or instrumentalists

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

3. D
One dot is removed in each series square. The black shading inside the circle increases by one quarter in each series square.

4. D
In each series square, the black shape turns grey and the next shape to the right turns black.

5. B
In each series square, the black shape disappears and the shape above it turns black.

Section 3 — Complete the Pair

1. B
The stick man on the right rotates 180 degrees.

2. B
The hatched parts of the figure turn black.

3. B
The figure reflects across and the top shape turns black.

4. A
The lines move outside the large shape and the large shape disappears. The small white shape moves down.

5. E
The grey shapes move to the top of the white shape. The two black dots move to the bottom of the figure, outside the white shape.

Section 4 — Odd One Out

1. E
All other figures have a rainbow with three stripes.

2. E
In all other figures, the arrow is pointing towards the square.

3. A
When all figures are rotated so the coloured stripe is at the bottom, the square is on the right-hand side in all other figures.

4. D
In all other figures, the cherry on the left is higher than the cherry on the right.

5. B
All other figures have five sides.

Section 5 — Look at the Figure from the Top

1. C
There should be four blocks visible from above, which rules out options A and B. There is a line of three blocks along the back of the figure, which rules out option D.

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

ASSESSMENT TEST 7

Section 1 — Rotate the Figure

1. A
The figure has been rotated 90 degrees clockwise. In option B, there are too few pages. In options C and D, some of the pages have the wrong shading.

2. D
The figure has been rotated 180 degrees. In option A, the stripe is grey and there are two few wheels. In option B, the black stripe is in the wrong place. In option C, the wheels are white.

3. C
The figure has been rotated 270 degrees clockwise (or 90 degrees anticlockwise). In option A, the shapes are the wrong size. In option B, the shadings of the diamond and the hexagon have swapped. In option D, the shapes are different.

4. D
The figure has been rotated 270 degrees clockwise (or 90 degrees anticlockwise). Options A, B and C have the wrong shadings.

Section 2 — Complete the Series

1. A
In each series square the black line moves up inside the egg shape.

2. B
The figure rotates 90 degrees clockwise in each series square.

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.

Quick Lesson Recap

1. Workout the area and perimeter of this shape

Area= 45cm^2 Perimeter = 29cm

2. Workout $\frac{3}{8}$ of 96

36

3. Workout $\frac{4}{7}$ of 154

88

4. Workout $\frac{2}{3}$ of 843

562

5. How much more than -12 is 7 ?

19

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

9.5

7. $24.5 \times 1000 =$

24500

8. What is the LCM of 12 and 10 ?

60

9. What is the Highest Common Factor of 60 and 12

12

1. $\frac{2}{6} + \frac{5}{8} = \frac{23}{24}$

2. $\frac{3}{7} + \frac{11}{14} = \frac{17}{14} = 1\frac{3}{14}$

3. $\frac{5}{8} + \frac{7}{24} = \frac{11}{12}$

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

5. $12 - 1\frac{7}{9} = 10\frac{2}{9}$

6. $5 - \frac{2}{5} = 4\frac{3}{5}$

7. $37 \div 1000 = 0.037$

8. $8^2 + 25 \div 5 - (3^2 - 7) = 67$