**Wakefield Girls'
High School**

**Queen Elizabeth
Grammar School**

NAME .... *ANSWERS* ....

SCHOOL ....

SAMPLE

MATHEMATICS

Time allowed: 1 hour

Instructions to candidates:

- Write your name and school in the spaces above.
- Answer the questions in the spaces provided in this booklet.
- Show all the stages of any calculations.
- Do not spend too long on any one question.
- If you cannot answer a question leave it and attempt the next one.
- Return at the end to those you have left out.
- Supplementary answer paper may be used, but must be handed in.
- Calculators may **NOT** be used.

TOTAL: 65 Marks

		Total	Overall %

Q1. Work out the following.

a) 9736 + 618

10 354

1 mark

b) 843 – 67

776

1 mark

c) 74 × 9

666

1 mark

d) 413 ÷ 7

59

1 mark

e) 4^2

16

1 mark

f) Multiply 784 by 43

$$
\begin{array}{r}
784 \\
43 \\
\hline
23\overset{2}{5}\overset{1}{2} \\
31\,360 \\
\hline
33712 \\
\end{array}
$$

33712

2 marks

g) Divide 5395 by 13

$$
\begin{array}{r}
415 \\
13\,\overline{)5395} \\
52 \\
\hline
19 \\
13 \\
\hline
65 \\
65 \\
\hline
0 \\
\end{array}
$$

415

2 marks

Page 2

Q2.

a) Add together **3.7** and **12.6**

16.3

1 mark

b) Subtract **6.7** from **26.1**

19.4

1 mark

c) Multiply **73.2** by **5**

366

1 mark

d) Divide **1.38** by **6**

$$\begin{array}{r} 0.23 \\ 6\overline{)1.38} \end{array}$$

0.23

2 marks

Q3. **a)** Join all the pairs of numbers that **add** together to equal **1**

The first one is done for you.

0.2		0.78
0.22		0.8
0.002		0.08
0.02		0.998
0.92		0.98
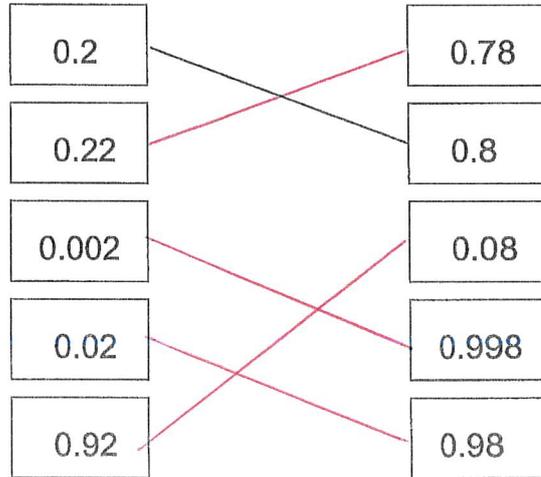
2 marks

b) Now join all the pairs of numbers that **multiply** to equal **1**

The first one is done for you.

0.5		4
1		10
0.05		2
0.1		1
0.25		20
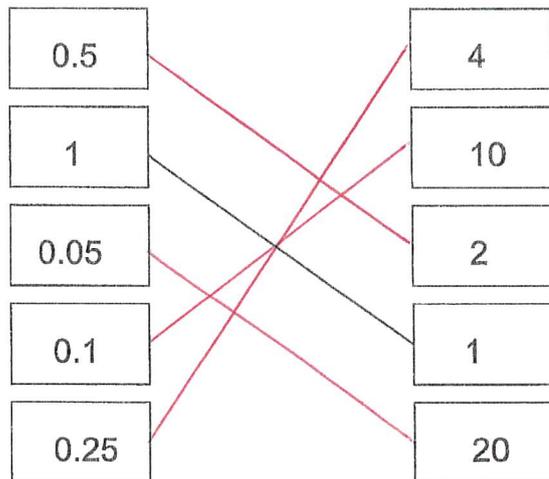
2 marks

Q4. a) A **three-digit** number is a **multiple of 4**

What could the number be?

Give an example.

eg _428_

Now give a **different** example.

eg _964_

<div align="right">2 marks</div>

b) A **two-digit** number is a **factor of 90**

What could the number be?

Give an example.

one of :   10, 15, 18, 30, 45, 90

Now give a **different** example.

....

<div align="right">2 marks</div>

Q5. Look at these number cards:

+3	0	−5	+9

+2	−8	+7	−2
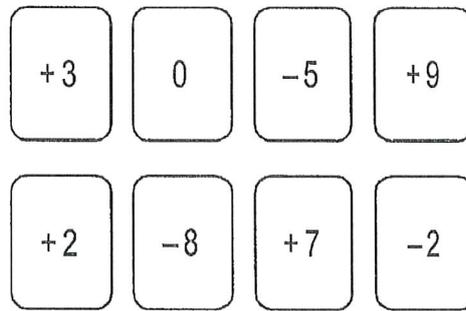
a) Choose a card to give the answer 4.

$$\boxed{+2} + \boxed{-5} + \boxed{+7} = 4$$

b) Choose a card to give the **lowest** possible answer.
Fill in the card below and work out the answer.

$$\boxed{-2} - \boxed{+9} = \boxed{-11}$$

Q6. Work out

a) $\dfrac{2}{7} + \dfrac{3}{7}$

......~~$\dfrac{5}{7}$~~......

1 mark

b) $\dfrac{10}{19} - \dfrac{8}{19}$

......~~$\dfrac{2}{19}$~~......

1 mark

c) $\dfrac{1}{4} + \dfrac{1}{5}$

$= \dfrac{5}{20} + \dfrac{4}{20}$

......~~$\dfrac{9}{20}$~~......

2 marks

d)   Work out $\dfrac{5}{6} + \dfrac{2}{5}$

Give your answer as a mixed number in its simplest form.

$\dfrac{25}{30} + \dfrac{12}{30}$

$= \dfrac{37}{30}$

......~~$1\dfrac{7}{30}$~~......

3 marks

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Q7. Here are six number cards.

| 2 | 4 | 6 | 8 | 10 | 12 |
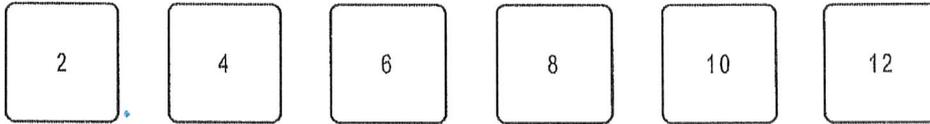
a) Choose two of these six cards to
   make a fraction that is equivalent to $\frac{1}{4}$

$$\frac{2}{8}$$

1 mark

b) Choose two of these six cards to

   make a fraction that is **greater than** $\frac{1}{2}$ but **less than 1**

one of: $\frac{10}{12}, \frac{8}{12}, \frac{8}{10}, \frac{6}{10}, \frac{6}{8}$ or $\frac{4}{6}$

1 mark

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Q8.

a) Write the missing numbers.

50% of 90 = **45**

5% of 90 = **4.5**

1% of 90 = **0.9**

2 marks

b) Work out 56% of 90

You can use part (a) to help you.

50.4

1 mark

c) Using your answer to (b) to help you **decrease** 90 by 56%

90 – 50.4

39.6

1 mark

Q9.

a) Fill in the missing digits:

$$
\begin{array}{r}
1\ \ 6\ \ \boxed{2} \\
+\ \ 2\ \ \boxed{4}\ \ 3 \\
\hline
\boxed{4}\ \ 0\ \ 5 \\
\end{array}
$$

2 marks

b) **Circle** the **two** numbers which would **subtract** to give **0.34**

0.79   (0.86)   0.96   (0.52)   0.35

1 mark

Q10.

4 pens cost £6.72.

2 pens and 1 pencil cost £3.78.

What is the cost of one pencil?

$6.72 \div 2 = 3.36 \Rightarrow 2\ pens$

$3.78 - 3.36 = 0.42 \Rightarrow 1\ pencil$

£0.42 or 42p

2 marks

Q11.

The diagrams show an **equilateral triangle** and a **square**.

The shapes are not drawn accurately.
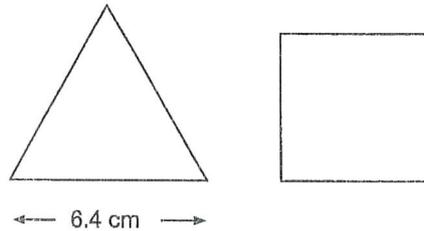
← 6.4 cm →

The side length of the equilateral triangle is 6.4cm.

The **perimeter** of the square is the **same** as the perimeter of the equilateral triangle.

Work out the **side length** of the square.

6.4×3 = 19.2
19.2÷4 = 4.8

.........................4.8.....cm

3 marks

Q12.

a)   Calculate the size of angles *a* and *b*.
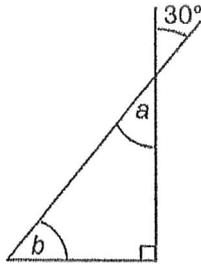
a = ...**30**......°

b = ...**60**......°

2 marks

b)   This diagram is not drawn accurately.

Calculate the size of angle *m*
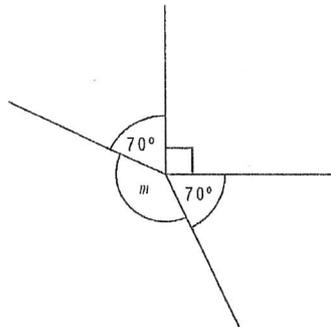
Show your working.

70+70+90 = 230

360-230 = 130

......**130**......°

2 marks

Q13. A rectangle has an **area** of **18 cm²**

How long could the sides of the rectangle be?

Give three **different** examples.

eg

.............1............ cm and ....18.......... cm

.............2............ cm and ....9.......... cm

.............3............ cm and ....6.......... cm

3 marks

Q14.

Poppy picks a number less than 20.

She divides it by 3 and then adds 5.

She then multiplies this result by 2.

Her answer is 18.4

What was the number she started with?

$$\boxed{\text{number}} \div 3 \quad +5 \quad \times 2 \quad \boxed{18.4}$$

$$\times 3 \quad -5 \quad \div 2$$

$$18.4 \div 2 = 9.2$$

$$9.2 - 5 = 4.2$$

$$4.2 \times 3 = 12.6$$

.........12.6.........

3 marks

Q15.

Look at the triangle.
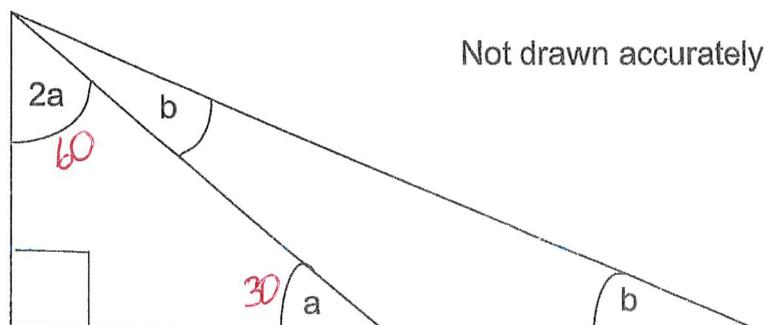
Not drawn accurately

Work out the value of b

$$2a + a = 90$$
$$3a = 90$$
$$a = 90 \div 3$$
$$= 30$$

$$2b + 60 = 90$$
$$2b = 30$$
$$b = 30 \div 2$$
$$= 15$$

.... $b = 15$

3 marks

Q16.

In a box of paper straws

- one-third are red

- one-quarter are pink

- the other 25 are purple

How many paper straws are there in the box?

$$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12}$$

$$= \frac{7}{12} \quad \text{Pink and red}$$

$$\text{so purple} = \frac{5}{12} \implies 25 \text{ straws}$$

$$\frac{1}{12} \implies 5 \text{ straws}$$

$$\frac{12}{12} \implies 5 \times 12 = 60$$

..........60..........

3 marks

Q17.

Poppy bakes ten cakes for the school fayre.

It costs £1.25 to make a cake.

She cuts each cake into 8 equal portions.

She sells each potion of cake for 50p.

She sells all the cakes.

How much profit does she make altogether?

$1.25 \times 10 = 12.50$

$0.5 \times 8 \times 10 = 40$

$40 - 12.50 = 27.50$

£27.50

3 marks

End of questions