Name: _____________________________________

Time allowed: 1 hour

Answer **ALL** questions on the sheet.

**Show your working clearly.**

Calculators are **NOT** allowed.

<table>
<thead>
<tr>
<th>Raw score</th>
<th>Percentage</th>
<th>%</th>
</tr>
</thead>
</table>
1. **Placing fractions**

Here are four fractions.

\[
\frac{3}{4} \quad \frac{1}{8} \quad \frac{1}{3} \quad \frac{3}{5}
\]

Look at the number line below.

Write each fraction in the correct box.

2 marks

2. **True or false**

Look at the number sentences below.

Tick (✓) ones that are correct and cross (✗) ones that are incorrect.

\[
\begin{array}{c}
5 + 8 = 8 + 5 \\
5 - 8 = 8 - 5 \\
5 \times 8 = 8 \times 5 \\
5 \div 8 = 8 \div 5
\end{array}
\]

2 marks
3. **Dial**

Look at the dial.

**(a)** Which number does it point to after turning clockwise through 90°?

\[ \]

1 mark

**(b)** The pointer turns clockwise from 3 to 6

Through how many degrees does it turn?

\[ \]

1 mark

4. **Travel**

Jamie travels by car for 2 hours, then by train for 3.5 hours. For how many minutes has he travelled?

\[ \]

2 marks
5. **Rectangle**

![Rectangle diagram](https://metalrockseducation.co.uk/)

What is the **perimeter** of the rectangle above?

6. **Eight times**

Write the missing numbers in the boxes.

\[
8 \times \underline{\hspace{2cm}} = 800
\]

\[
0.8 \times \underline{\hspace{2cm}} = 8
\]

7. **Fractions**

Calculate

\[
\frac{5}{6} \times \frac{3}{5}
\]

Show your working. Write your answer as a fraction in its **simplest form**.
8. **Odds and evens**

(a) Anna says:

`Multiply any number by three. The answer **must** be an odd number.`

Give an example to show that Anna is **wrong**.

1 mark

(b) Jay says:

`Divide any even number by two. The answer **must** be an odd number.`

Give an example to show that Jay is **wrong**.

1 mark

9. **Boxes**

Boxes of tins are delivered to a shop.

There are **37 boxes**.

Each box contains **25 tins**.

How many tins are there?

.......................... 2 marks
10. **Cubes in bags**

I have two bags of cubes. Each bag contains more than 20 but fewer than 30 cubes.

(a) I can share the cubes in bag A equally between 9 people. How many cubes are in bag A?

..................

1 mark

(b) I can share the cubes in bag B equally between 4 people. How many cubes could be in bag B? There are two answers. Write them both.

................... or ...................

2 marks

11. **Calculations**

Work out the following. Show your working clearly.

65 \times 9

.....................

1 mark

154 \div 7

.....................

1 mark
12. **Radio**

Two websites sell the same type of radio.

<table>
<thead>
<tr>
<th></th>
<th>Website A</th>
<th>Website B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of radio</td>
<td>£ 79.99</td>
<td>£ 76.76</td>
</tr>
<tr>
<td>Cost of postage</td>
<td>£ 3.49</td>
<td>£ 6.79</td>
</tr>
</tbody>
</table>

Sunil is going to buy the radio from one of the websites.

He also has to pay for postage.

Which website is cheaper? You **MUST** show your working.

Website .................... 3 marks

13. **Brackets**

(a) Work out the answer.

\[
2 + (16 + 2) + 6 = ....................
\]

1 mark

(b) Put brackets in the calculation below to make it correct.

\[
2 + 16 + 2 + 6 = 4
\]

1 mark
14. **Add to 8**

Complete this diagram so that the three numbers in each line add to 8.

```
3

5\frac{1}{2}

\frac{3}{4} + \frac{1}{8}
```

15. **Dividing fractions**

Work out the following: You MUST show your working.

\[ \frac{3}{4} + \frac{1}{8} \]
16. **Cards for fractions**

Here are six number cards.

\[
\begin{array}{cccccc}
2 & 4 & 6 & 8 & 10 & 12 \\
\end{array}
\]

(a) Choose two of these six cards to make a fraction that is equivalent to \(\frac{1}{3}\)

\[
\underline{\hspace{2cm}} \frac{\hspace{2cm}}{\hspace{2cm}}
\]

1 mark

(b) Choose two of these six cards to make a fraction that is greater than \(\frac{1}{2}\) but less than 1

\[
\underline{\hspace{2cm}} \frac{\hspace{2cm}}{\hspace{2cm}}
\]

1 mark
17. **Angles**

Work out the sizes of angles $a$, $b$ and $c$ in the triangles below.

\[ a = \ldots \ldots \ldots \,^\circ \]
\[ b = \ldots \ldots \ldots \,^\circ \]
\[ c = \ldots \ldots \ldots \,^\circ \]

3 marks
18. **Shopping**

Some people in a supermarket are shopping for food.

(a) **100g** of cheese costs **46p**.

Peter buys **400g** of the cheese.

How much does he pay?

£

1 mark

(b) Tins of beans cost **36p each**.

What is the largest number of these tins John can buy with **£2**?


1 mark

19. **Sleep**

Some people use this rule to work out how many hours’ sleep each night young children need.

Subtract the child’s age in years from **30**, then divide the result by **2**

(a) Sanjay is **8** years old.

Use the rule to work out how many hours’ sleep he needs.

................. hours

1 mark

(b) Lisa is **6** years old. She wakes up every morning at **7am**.

Use the rule to work out what time she needs to go to sleep.

................. 2 marks
20. TV Channels

The chart shows the popularity of different television channels.

Complete the missing information.

In **1980**, only three television channels were available. The most popular

was ........................ .

1 mark

In **2005**, the biggest percentage share is for ........................ .

1 mark

The percentage share for ........................ remained **almost the same** at

about ........................ % each year.

1 mark
21. Perimeter and area

Look at the hexagon and the triangle.

(a) Do the hexagon and triangle have the same area?  
Tick (✔) Yes or No.

[ ] Yes  [ ] No

Explain your answer.

(b) Do the hexagon and triangle have the same perimeter?  
Tick (✔) Yes or No.

[ ] Yes  [ ] No

Explain your answer.
22. **Shape statements**

Look at the shaded shape drawn on the square grid.

For each statement below, tick (✔) True or False.

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>The shape is a quadrilateral.</td>
<td>✔</td>
</tr>
<tr>
<td>The shape is a square.</td>
<td>✔</td>
</tr>
<tr>
<td>The shape has one line of symmetry.</td>
<td>✔</td>
</tr>
<tr>
<td>The shape has no right angles.</td>
<td>✔</td>
</tr>
</tbody>
</table>

4 marks
23. **Balancing**

2 tins balance 1 bottle.

1 tin and 1 bottle balance 1 box.

(a) How many **bottles** do 6 tins balance?

........................................ 1 mark

(b) How many **boxes** do 6 tins balance?

........................................ 1 mark
24. Recycling rubbish

The pie charts show what percentage of household rubbish is recycled in different countries.

Key

- % of rubbish recycled
- % of rubbish not recycled

(a) In England, about what percentage of rubbish is recycled?

.......................... %

1 mark

(b) England wants to recycle 30% of rubbish by the year 2010.

Which countries already recycle more than 30% of their rubbish?

........................................................................

1 mark

https://metalrockeducation.co.uk/
25. **Doughnuts**

Here are the prices of doughnuts at two different shops.

<table>
<thead>
<tr>
<th></th>
<th>Shop A</th>
<th>Shop B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 doughnuts</td>
<td>3 doughnuts for £2</td>
<td>5 doughnuts for £3.50</td>
</tr>
</tbody>
</table>

I want to buy 15 doughnuts.

In which shop are the doughnuts **cheaper**?

You **MUST** show your working.

Tick (✔) your answer.

☐ Shop A  ☐ Shop B

26. **Count on**

(a) I count on in **equal steps**.

My fourth number is 42, my fifth number is 47

?  ?  ?  42  47

What is my first number?

..................

2 marks

(b) I count on in **equal steps**.

My first number is –3, my fifth number is 5

−3  ?  ?  ?  5

What is my third number?

..................

2 marks

https://metalrockseducation.co.uk/
27. Making 1

(a) Join all the pairs of numbers that add together to equal 1

The first one is done for you.

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

The first one is done for you.
Work out the sizes of angles $a$, $b$ and $c$. Give reasons for your answers.

$a = \ldots \ldots \ldots \ldots \ldots \deg$ because

$b = \ldots \ldots \ldots \ldots \ldots \deg$ because

$c = \ldots \ldots \ldots \ldots \ldots \deg$ because
29. **Sequences**

For each sequence below, tick (✓) the correct box to show if it is increasing, decreasing or neither.

<table>
<thead>
<tr>
<th></th>
<th>increasing</th>
<th>decreasing</th>
<th>neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 6 |            |            |         |
| 7 |            |            |         |
| 8 |            |            |         |
| 9 |            |            |         |
| 10|            |            |         |

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

| 3 |            |            |         |
| 2 |            |            |         |
| 4 |            |            |         |
| 5 |            |            |         |

4 marks

30. **Sizing**

(a) Put these values in order of size with the smallest first.

\[ 5^2 \quad 3^2 \quad 3^3 \quad 2^4 \]

<table>
<thead>
<tr>
<th>smallest</th>
<th></th>
<th></th>
<th>largest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 marks

(b) Look at this information.

\[ 5^5 \text{ is } 3125 \]

What is \( 5^6 \)?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

2 marks

END OF QUESTION PAPER. NOW CHECK YOUR ANSWERS!