**Level 5**

**PROMPT sheet**

**5/1 Multiply & divide by 10, 100, 1000**

* **By moving the decimal point**

To **multiply** by 10 move the dp ONE place RIGHT

e.g. 3.4 x 10 = 34

To **divide** by 10 move the dp ONE place LEFT

e.g. 3.4 x 10 = 0.34

* **By moving the digits**

To multiply by 10 move the dp ONE place RIGHT

e.g. 3.52 x 10

 = 3 5 . 2

5/2 Rounding decimals

* Look at the last number required
* Look at the first number NOT required

e.g. To round 5 . 47 to 1dp

 last number required 1st number NOT required

 increase this by 1 Is this 5 or more? YES - delete

e.g. To round 5 . 43 to 1dp

 last number required 1st number NOT required

 leave this alone Is this 5 or more? NO - delete

**5/2 Order negative numbers**

 l l l l l l l

-3 -2 -1 0 1 2 3

2 > -2 We say 2 is bigger than -2

-1 < 3 We say -1 is less than 3

**5/3 Number patterns**

Look to see how numbers are connected

* Multiples

Multiples of 6 are: 6, 12, 18, 24, 30...

* Factors

Factors of 6 are: 1, 6, 3, 2

* Prime numbers

Prime numbers have only TWO factors

2, 3, 5, 7, 11, 13, 17, 29, 31, 37 ......

* Sequences

1, 4, 9, 16, 25, 36 ... are all square numbers

1, 8, 27, 64, 125 ... are all cube numbers

1, 4, 7, 10, 13, 16 ... increase b 3 each time

5/4 Order fractions and decimals

* **Fractions**

They must have the same denominator

e.g.    

    

Now the fractions can be ordered

* **Decimals**

Give them all the same number of digits

 e.g. 0.3, 0.304, 0.32, 0.33

 0.300 0.304 0.320 0.330

Now the decimals can be ordered

**5/5 Cancel a fraction to its lowest terms**

See what number divides exactly into both the numerator and denominator

 ÷4

e.g.  

 ÷4

 ÷5

e.g.  

 ÷5

**5/6 Order of operations**

**Bracket**

**I**ndices

**D**ivide

Do these in the order they appear

**M**ultiply

**A**dd

Do these in the order they appear

**S**ubtract

|  |  |  |  |
| --- | --- | --- | --- |
|  0  3  |  1 5  |  0 6 | 3 |
| 0 4 | 2 0 | 0 8 | 4 |

e.g. 3 + 4 x 6 – 5 = 22

 first

**5/7 Fraction of quantity with calculator**

* 4 means ÷ 5 x 4

5

e.g. To find 4 of £40

 5

 £40 ÷ 5 x 4 = £40

**5/7 Percentage of quantity with calculator**

* **Change the percentage to a decimal**

e.g. 8% of £240 12 ½ % of 80kg

 = 0.08 x 240 = 0.125 x 80

 = £19.20 = 10kg

 80% of 52 litres

 = 0.8 x 52

 = 41.6 litres

**5/8 Multiply by a two digit number**

**Try different methods to find which suits you**

e.g. 152 x 34 **COLUMN METHOD**

 152

 34x

 608 (x4)

 4560 (x30)

 **5168**

e.g. 152 x 34 **GRID METHOD**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 | 50 | 2 |
| 30 | **3000** | **1500** | **60** |
| 4 |  **400** |  **200** |  **8** |

152 x 34 = 3400 + 1700 + 68 = **5168**

e.g. 152 x 34 **CHINESE METHOD**

 1 5 2

**5 1 6 8 = 5168**

e.g. 152 x 34 **RUSSIAN METHOD**

Half Double

~~152 x 34~~

~~76 68~~

~~38 136~~

Cross out left hand side even numbers

19 272

9 544

~~4 1088~~

~~2 2176~~

1 4352

**Add what is left**

**272 + 544 + 4352 = 5168**

**5/8 Divide by a two digit number**

**Try different methods to find which suits you**

e.g. 4928 ÷ 32 **BUS SHELTER METHOD**

* Divide
* Multiply
* Subtract
* Bring down - Make a new number
* Divide ...

 0 1 5 4

32 4 9 2 8

 -3 2

 1 7 2

 -1 6 0

 1 2 8

 -1 2 8

 0 0 0

 4928 ÷ 32 = **154**

e.g. 4928 ÷ 32 **CHUNKING METHOD**

 4 9 2 8

 3 2 0 0 100 X 32

 1 7 2 8

 1 6 0 0 50 X 32

 1 2 8

 1 2 8 4 X 32

 4928 ÷ 32 = **154**

e.g. 4928 ÷ 32 **SHORT DIVISION**

 **METHOD**

(Except write down some of your tables down first)

32

64 0 1 5 4

96 32 449172 128

128

160

4928 ÷ 32 = **154**

**5/9 Negative numbers**

Remember the rules:

* When subtracting go down the number line
* When adding go up the number line
* 8 + - 2 is the same as 8 – 2 = 6
* 8 - + 2 is the same as 8 – 2 = 6
* 8 - - 2 is the same as 8 + 2 = 10

**5/10 Ratio**

* How it is written

Yellow : Red

= 2 : 6

* How it can be simplified

 Yellow : Red

= 1 : 3

* Simplify by cancelling

Examples

2÷2: 6÷2 = 1 : 3

10÷5 : 15÷5 = 2 : 3

**5/10 Direct proportion**

**e.g.1**

5 miles is approximately 8km.

How many miles are equal to 24km?

**24km ÷ 8km = 3**

**5 miles x 3 = 15 miles**

**e.g.2**

It takes 90 Lego bricks to build 3 planes

How many bricks would be needed for 11?

**1 plane uses 90 ÷ 3 = 30 bricks**

**11 planes will use 11 x 30 = 330 bricks**

**5/12&13 Properties of 2D & 3D shapes**

**Symmetries**

* **Order of Line Symmetry**

this is the number of times a shape can be folded so that one side falls exactly onto the other side

**This shape has line symmetry ORDER 4**

* **Order of Rotational Symmetry**

this is the number of times a shape falls into its outline in one complete turn

**A parallelogram has rotational symmetry order 2**

**Names of shapes – Quadrilaterals**

 Square rectangle parallelogram

 Rhombus trapezium kite

**Names of shapes - Triangles**

**Right angled Isosceles Equilateral**

**3D shape**

 **face**

 **edge**

 **vertex**

**5/14 Angles**

* **Types of angles**

 Acute Right Obtuse

(less than 900) (Exactly 900) (Between 900 & 1800)

Straight Reflex Complete

 line turn

 (1800) (Between 1800 & 3600) (3600)

* **Angles of a triangle**

Angles of a triangle add up to 1800

**5/15 Transform Shapes**

* **Reflection**

A shape flipped over a line

* **Rotation**

A shape turned round a point

* **Translation**

A shape moved along a line

**5/16 Measure and draw angles**



To be sure, count the number of degrees between the two arms of the angle

**5/17 Scales**



Work out the value of each small division before taking any readings

**5/18 Units of measure**

* **Metric units**

|  |  |  |
| --- | --- | --- |
| Length | Weight | Capacity |
| 10mm =1cm | 1000g=1kg | 1000ml=1 litre |
| 100cm =1m |  | 10ml=1centilitre |
| 1000m=1km |  |  |

* **Imperial units**

|  |  |  |
| --- | --- | --- |
| Length | Weight | Capacity |
| 1 inch=2.5cm | 2.2 pounds≈1kg | 1gallon≈4.5litres |
| 1 foot=30cm |  |  |
| 1 mile≈1.6km |  |  |

**5/19 Area and perimeter of rectangle**

Area is the amount of space inside the outline of a shape

Perimeter is the length of the outline of a shape

* **Area of rectangle = length x width**

 3cm

 8cm

Area of rectangle = l x w

 = 8 x 3

 = **24cm2**

* **Perimeter of the rectangle**

Perimeter = 3 + 8 + 3 + 8 OR 2x3 + 2x8

 **22cm**

**5/20 Probability**

* **Probability scale**

 Unlikely likely

0 1

l l l

l l l

Impossible Evens Certain

* **Calculate probability**

P(event) = No. of outcomes which give the event

 Total number of outcomes

* **Probability of an event NOT happening**

If p(event) = p

 P(event NOT happening) = 1 - p

e.g. If p(rain ) = 0.3

 p( NOT rain) = 1 – 0.3= 0.7

**5/21 Averages and Range**

Mode – most frequent measure

Median – middle measure (put them in order)

Mean – total of measures ÷ no. of measures

Range – highest minus lowest measure

* **Range** measures how spread out the measures are
* **Mode, median & mean** gives an average
* The range and one of the averages is used to compare distributions

**5/22 Probability – repeating an**

 **experiment**

**LEARN**

* Different outcomes are possible from repeating an experiment
* The larger the number of trials, the more valid the result

**5/23 Interpret graphs & diagrams**



Here we are not told how many people in any of the sectors

We can therefore only comment on proportion by comparing the sizes of sectors in each pie chart

e.g. there is a larger proportion of the population under 15 in Ireland than Greece

**It does not mean there are more people**