**Level 4**

**PROMPT sheet**

**4/1 Number Patterns**

* A list of numbers with a pattern is called a **SEQUENCE**
* The numbers are called **TERMS**
* A **‘TERM TO TERM RULE’** tells you how to get from one term to the next

It might be add, subtract, multiply or divide by something

This is a sequence:

terms

3 5 7 9 11

+2 +2 +2

Term to term rule

**4/2 Multiples, factors & square numbers**

* **FACTORS are what divides exactly into a number**

e.g. Factors of 12 are:

1 12

2 6

3 4

* **MULTIPLES are the times table answers**

e.g. Multiples of 5 are:

5 10 15 20 25 .......

* **SQUARES are the result of multiplying a number by itself**

e.g. 1 x 1 = 1

2 x 2= 4 Square numbers

3 x 3= 9

**4/3 Multiply & Divide by 10 or 100**

* **To multiply by 10, move each digit one place to the left**

e.g. 35.6 x 10 = 356

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hundreds | Tens | Units |  | tenths |
|  | 3 | 5 | 6 |
| 3 | 5 | 6 |  |

* **To divide by 10, move each digit one place to the right**

e.g. 35.6 ÷ 10 = 3.56

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tens | Units |  | tenths | hundredths |
| 3 | 5 | 6 |  |
|  | 3 | 5 | 6 |

* **To multiply by 100, move each digit 2 places to the left**
* **To divide by 100, move each digit 2 places to the right**

**4/3 Multiply & Divide by 10 or 100**

**AN ALTERNATIVE METHOD**

Instead of moving the digits

Move the decimal point the opposite way

**4/4 Fraction, decimal, percentage**

**equivalents**

**LEARN THESE:**

 = 0.25 = 25%

 = 0.5 = 50%

 = 0.75 = 75%

**4/5 Convert mixed numbers to improper**

**fractions & vv**

* **An improper fraction is top heavy**

**& can be changed into a mixed number**

 can be shown in a diagram

1 ½

 = 1½

Improper fraction Mixed number

* **A mixed number can be changed back into an improper fraction**

1½ = 

2¾ = 

**4/6 Simple ratio**

The ratio of squares to triangles

can be written

squares : triangles

4 : 6

÷ 2 ÷ 2

**2 : 3**

Ratios can be simplified just like fractions

**4/7 Use inverse operations**

* To undo ADD, just SUBTRACT

e.g. 36 +  **23**  = 59 (59 – 36 = **23**)

* To undo MULTIPLY, just DIVIDE

e.g. 7 x **3** = 21 (21 ÷ 7 = **3**)

* Use balancing:

20 + = 20 × 4

20 + = 80

20 + **60** = 80 (80– 20 = **60**)

**4/8 Brackets in calculations**

**A calculation must be done in the correct order**

1. **Brackets**
2. **Indices, Division and Multiplication**
3. **Addition and Subtraction**

**Using this order I get 3 different answers:**

**3 + 6 x 5 – 1 = 32**

**(3 + 6) x 5 – 1 = 44**

**3 + 6 x (5 – 1) = 27**

**It all depends on where the bracket is**

**4/9 Times tables up to 10x10**

**It is important to know the times tables**

**and the division facts that go with them**

**Example**

**9 x 7 = 63**

**63 ÷ 9 = 7**

**63 ÷ 7 = 9**

**4/11 Coordinates in first quadrant**

* The horizontal axis is the x-axis
* The vertical axis is called the y-axis
* The origin is where the axes meet
* A point is described by two numbers

The 1st number is off the x-axis

The 2nd number is off the y-axis

**y**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **5**  **4**  **3**  **2**  **1** |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  | **P** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**0 1 2 3 4 5 6 x**

**Origin (0,0) P is (5, 3)**

**4/12 Written methods for addition**

* **Line up the digits in the correct columns**

e.g. 48 + 284 + 9 H T U

4 8

2 8 4

1 2 9 +

3 4 1

**4/12 Written methods for subtraction**

* **Line up the digits in the correct columns**

e.g. 645 - 427 H T U

6 34 15

4 2 7 -

2 1 8

**4/12 Written methods for multiplication**

e.g. 38 x 7 3 8

5 7 x

2 6 6

**4/12 Written methods for multiplication**

e.g. 38 x 7 30 8

7 210 56

210 + 56 = **266**

**4/12 Written methods for division**

e.g. 125 ÷5 **BUS SHELTER METHOD**

0 2 5

5 ) 1 12 25

**CHUNKING METHOD**

e.g. 125 ÷5

5 ) 1 2 5

1 0 0 (**20** x 5)

2 5 (**5** x 5)

2 5

125 ÷5 = 25

**4/13 Add & subtract decimals**

* **Line up the digits and the decimal points**

e.g. 28.5 + 0.37 + 7 2 8 . 5

0 . 3 7

7

3 5 . 8 7

**4/13 Multiply a decimal**

e.g. 28.5 x 3 2 8 . 5

2 1 3 x

8 5 . 5

**4/14 Properties of 2D shapes**

**TRIANGLES – angles add up to 1800**

***Isosceles triangle***

* 2 equal sides
* 2 equal angles
* 1 line of symmetry
* No rotational symmetry

***Equilateral triangle***

* 3 equal sides
* 3 equal angles - 600
* 3 lines of symmetry
* Rotational symmetry order 3

**QUADRILATERALS – all angles add up to 3600**

***Square***

* 4 equal sides
* 4 equal angles - 900
* 4 lines of symmetry
* Rotational symmetry order 4

***Rectangle***

* Opposite sides equal
* 4 equal angles - 900
* 2 lines of symmetry
* Rotational symmetry order 2

***Parallelogram***

* Opposite sides parallel
* Opposite angles equal
* NO lines of symmetry
* Rotational symmetry order 2

***Rhombus (like a diamond)***

* Opposite sides parallel
* Opposite angles equal
* 2 lines of symmetry
* Rotational symmetry order 2

***Trapezium***

* ONE pair opposite sides parallel

***Kite***

* One pair of opposite angles equal
* 2 pairs of adjacent sides equal
* ONE line of symmetry
* No rotational symmetry

**4/14 Properties of 3D shapes**

**PRISMS- same cross section through length**

***Cube and cuboid***

* **6 faces**
* **12 edges**
* **8 vertices**

***Triangular prism***

* **5 faces**
* **9 edges**
* **8 vertices**

***Cylinder – special prism***

**PYRAMIDS- a point opposite the base**

***Pyramid – square based***

* **5 faces**
* **8 edges**
* **5 vertices**

***Pyramid – triangular based***

* **4 faces**
* **6 edges**
* **4 vertices**

***Cone – special pyramid***

**SPHERES- ball shape**

**4/15 Reflect in a mirror line**

* **To reflect a shape in a vertical line**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

* **To reflect a shape in a 450 line**

***Distances from shape to mirror and mirror to reflection must be same***

**Tracing paper is useful:**

1. **Trace the shape & the mirror line**
2. **Flip the tracing paper over the mirror line**
3. **Redraw the shape in its new position**

**4/16 Translate a shape**

* **Move horizontally 5 spaces right**

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

* **Move vertically 4 spaces down**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | 1 |  |
|  |  |  | 2 |  |
|  |  |  | 3 |  |
|  |  |  | 4 |  |
|  |  |  |  |  |

4/16 Rotate a shape

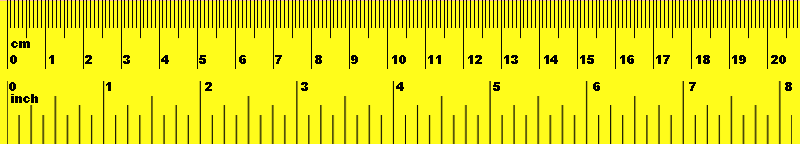
* **To rotate a shape 1800 about P**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | P |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

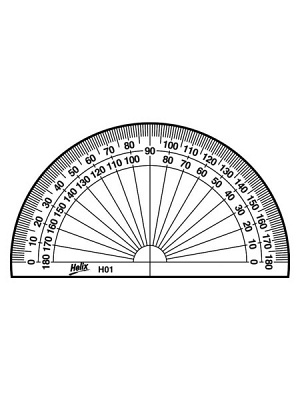
**Tracing paper is useful:**

1. **Trace the shape**
2. **Hold the shape down with a pencil**
3. **Rotate tracing paper**
4. **Redraw the shape in its new position**

**4/17 Use a ruler accurately**

*Measure from 0*

*This line is 14.7cm long*

****

**Use a protractor accurately**

*Count the number of degrees between the 2 arms of the angle. This angle is 1270*

**4/18 Find perimeter of simple shapes**



* **Perimeter** is round the **OUTSIDE**

Perimeter of this shape = 12cm

****

1

* **Area** is the number of squares **INSIDE**

Area of this shape = 5cm2

**4/19 Record using a frequency table**

|  |  |  |
| --- | --- | --- |
| **Score on dice** | **Tally** | **Frequency** |
| **1** | **llll llll** | **10** |
| **2** | **llll** | **4** |
| **3** | **llll l** | **6** |
| **4** | **lll** | **3** |
| **5** | **lll lll** | **8** |
| **6** | **l** | **1** |

**4/19 Record using a grouped frequency table**

|  |  |  |
| --- | --- | --- |
| Weight(w) | Tally | Frequency |
| 15 ≤ w < 20 |  |  |
| 20 ≤ w < 25 |  |  |
| 25 ≤ w < 30 |  |  |
| 30 ≤ w < 35 |  |  |
| 35 ≤ w < 40 |  |  |

**4/20 Use a Venn Diagram**

* **To place these numbers onto a Venn diagram**

4 8 12 16 20 24 28 32 36 40

3

4

2

36

4 28 8 16

5

12 24 32

20 40

**Multiples of 4** **Multiples of 8**

* **To place these numbers onto a Carroll diagram**

25 27 14 47 36 37 67 64 16 9 11

|  |  |  |
| --- | --- | --- |
|  | Square number | Not a square number |
| Odd number of factors | 9 16 25 36 64 |  |
| Even number of factors |  | 11 14 27 47 37 67 |

**4/21 Construct/interpret graphs**

* **Line graph - temperature**



* **Bar graph – Number of pupils at a**

**youth club**



* **Pie chart – Number of pupils in the**

**yard**



**4/22 Mode and Range**

* **Mode is the most frequent measure**
* **Range is highest minus lowest measure**

**4/23 Language of probability**

* **Probability words are used to describe how likely it is that an event will happen.**

Examples of probability words are

* **certain**
* **likely**
* **even chance**
* **unlikely**
* **impossible**

Other words:

* **Equally likely** – when all outcomes have the same chance of occurring
* **Biased** – when all outcomes do NOT have the same chance of occurring