Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is your maths pack for the week commencing 11.05.20. I have tried to put as much help on it as possible. If you have any problems please either phone the school or email: [mgater@suttonhouse.org.uk](mailto:mgater@suttonhouse.org.uk) me and I will call you and try to guide you through.

**Rearranging formulas**

Making a letter the subject of a formula means rearranging the formula so that the letter you want is on its own on the left.

It’s a bit like solving an equation – you always have to do the same thing to both sides.

|  |  |  |
| --- | --- | --- |
| Example 1: Make e the subject of the formula f = eg | | |
| 1 | Write down the original formula | f = eg |
| 2 | Divide both sides by g  Then e is on its own since eg ÷ g = e | f ÷ g = eg ÷ g  f ÷ g = e |
| 3 | In your final answer, always write the letter that’s on its own on the left hand side of the formula. All the other letters should be on the right hand side | e = f ÷ g |

**Your turn**

|  |  |
| --- | --- |
| Make s the subject of the following formulas. All your answers should begin with s = | |
| r = s + 4 | h = 12 + s |
| p = s - 8 | j = 28 + s |

**Function machines**

|  |
| --- |
| Example 1:  The input is your start number  You then do the first calculation  Then use the answer for the second calculation  The output is your final answer |
| See the source image |

**Your turn**

|  |
| --- |
|  |
|  |

**Sequences**

A sequence is a list of numbers or shapes which follows a particular rule.

Each number or shape in a sequence is called a term.

The rule for extending a sequence tells you how to find the next term

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Example 1: The first term in a sequence is 3. The rule for finding the next term is add 4 to the previous term. Write down the first 5 terms of the sequence. | | | | | | | | | | |
| 1. The first term is 6, so write this down 2. Add 4 each time to find the terms | | 6 | ͜  +4 | 10 | ͜  +4 | 14 | ͜  +4 | 18 | ͜  +4 | 22 |
|  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Example 2: Consider the sequence 2, 6, 18, 54… | | | | | | | | | | |
| 1. Explain the rules for finding the next term in the sequence | |  | Multiply the previous term by 3 | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| 1. Write down the next four terms in the sequence | | 2 | ͜  X3 | 6 | ͜  X3 | 18 | ͜  X3 | 54 | ͜  X3 | 162 |
|  |  |  |  |  |  |  |  |  |  |  |
|  | |  | | | | | | | | |

**Your turn**

|  |
| --- |
| Write the first 5 terms of each of these sequence |
| The first term is 5. The rule for finding the sequence is add 4 to the previous term. |
| The first term of a sequence is 2. The rule for finding the next term is multiply the previous term by 2. |
| The first term of a sequence is 100. The rule for finding the next term is subtract 6 from the previous term. |

**Sequences Term to Term rules**

You can also work out a term by using its position (n) in the sequence.

For example the first term has position n = 1, the second term has n = 2, the 10th term has n = 10 and so on.

|  |  |  |  |
| --- | --- | --- | --- |
| Example 1: The nth term of a sequence is 2n – 1. Find the first 4 terms of the sequence | | | |
|  | |  | |
| 1 | To find the 1st, 2nd, 3rd and 4th terms of the sequence substitute the values n = 1, n = 2, n = 3 and n = 4 into the formula | | (2 x 1) – 1 = 1  (2 x 2) – 1 = 3  (2 x 3) – 1 = 5  (2 x 4) – 1 = 7 |
| 2 | Write the terms in order to form the sequence | | So the first four terms of the sequence are  1, 3, 5, 7 |

**Your turn**

|  |
| --- |
| Find the first four terms in each sequence |
| The nth term of a sequence is 2n + 3 |
| The nth term of a sequence is 20 – 2n |
| The nth term of a sequence is 2n + 20 |
| The nth term of a sequence is 100 – 3n |

**This pack should be completed and returned for marking by 25th May 2020**