

**Converting Binary to Decimal**

Name: Answer key Grade: 7 \_\_\_\_\_\_\_\_\_\_\_

**Transistors:**

* The computer’s microprocessor is a small component made up of millions of tiny electrical switches.
* Transistors can be only either **On or Off**



* A computer stores and processes data in a simple format because it only understands these two states On **and Off**



**Binary system:**

* The binary number system only uses zero and one to represent data.

 **Byte:**

* Byte is the basic word that a computer uses.
* A byte is eight bits’ long

**Measuring computer memory:**



Write each binary number as a decimal number:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1- Binary = (10011) 2 Decimal =19

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 0 | 0 | 1 | 1 |
| 16 | 8 | 4 | 2 | 1 |

16+0+0+2+1=19 | 2- Binary = (10000) 2 Decimal =16

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 0 | 0 | 0 | 0 |
| 16 | 8 | 4 | 2 | 1 |

16+0+0+0+0=16 |
| 3- Binary = (101011) 2 Decimal =43

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | 0 | 1 | 0 | 1 | 1 |
| 32 | 16 | 8 | 4 | 2 | 1 |

32+0+8+0+2+1=43 | 4- Binary = (1111) 2 Decimal =15

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 1 | 1 | 1 |
| 8 | 4 | 2 | 1 |

8+4+2+1=15 |
| 5- Binary = (110011) 2 Decimal =51

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 1 | 1 |
| 32 | 16 | 8 | 4 | 2 | 1 |

32+16+0+0+2+1=51 | 6-Binary = (11000) 2 Decimal =24

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 0 |
| 16 | 8 | 4 | 2 | 1 |

16+8+0+0+0=24 |