Basic NumPy Functions – Cheat Sheet

# 1. Array Creation

|  |  |
| --- | --- |
| Function | Purpose |
| np.array() | Create array from a list or tuple |
| np.zeros() | Create array filled with 0s |
| np.ones() | Create array filled with 1s |
| np.full() | Create array with a specific value |
| np.arange() | Create range of values (like range()) |
| np.linspace() | Evenly spaced values in a range |
| np.eye() | Create identity matrix |
| np.random.rand() | Create array with random values |

# 2. Array Math

|  |  |
| --- | --- |
| Function | Purpose |
| np.add() | Element-wise addition |
| np.subtract() | Element-wise subtraction |
| np.multiply() | Element-wise multiplication |
| np.divide() | Element-wise division |
| np.power() | Element-wise exponentiation |
| np.dot() | Matrix multiplication |

# 3. Array Properties

|  |  |
| --- | --- |
| Function | Purpose |
| .shape | Get dimensions (rows, cols) |
| .ndim | Number of dimensions |
| .size | Total number of elements |
| .dtype | Data type of elements |
| .itemsize | Bytes per element |

# 4. Reshaping & Combining

|  |  |
| --- | --- |
| Function | Purpose |
| .reshape() | Change shape of array |
| np.vstack() | Stack vertically (row-wise) |
| np.hstack() | Stack horizontally (column-wise) |
| np.concatenate() | Join arrays along specified axis |
| .flatten() | Convert to 1D array |
| .ravel() | Flatten without copying (if possible) |

# 5. Aggregation & Stats

|  |  |
| --- | --- |
| Function | Purpose |
| np.sum() | Total sum |
| np.mean() | Average value |
| np.median() | Median value |
| np.std() | Standard deviation |
| np.min() | Minimum value |
| np.max() | Maximum value |
| np.argmin() | Index of minimum value |
| np.argmax() | Index of maximum value |

# 6. Logical & Comparison

|  |  |
| --- | --- |
| Function | Purpose |
| np.where() | Conditional selection |
| np.any() | Check if any element is True |
| np.all() | Check if all elements are True |
| np.unique() | Find unique values in array |
| np.sort() | Sort array |