Kubectl cluster-info

**Basic Commands**

| **Command** | **Description** |
| --- | --- |
| kubectl get pods | List all pods in the current namespace |
| kubectl get nodes | List all nodes in the cluster |
| kubectl get services | List all services |
| kubectl get deployments | List all deployments |
| kubectl get rs or kubectl get replicasets | List ReplicaSets |
| kubectl get all | List all objects in the namespace |
| kubectl describe pod <pod-name> | Detailed info of a specific pod |
| kubectl describe node <node-name> | Detailed info of a node |
| kubectl get events | Show cluster events |
| kubectl get namespaces | List all namespaces |

**Creating and Applying Resources**

| **Command** | **Description** |
| --- | --- |
| kubectl apply -f <file>.yaml | Apply a config file |
| kubectl create -f <file>.yaml | Create resource(s) from file |
| kubectl create deployment <name> --image=<image> | Create a deployment quickly |
| kubectl expose deployment <name> --port=<port> --type=NodePort | Create service for a deployment |

**Managing Pods and Containers**

| **Command** | **Description** |
| --- | --- |
| kubectl logs <pod-name> | View logs from a pod |
| kubectl exec -it <pod-name> -- bash | Access shell in a running pod |
| kubectl port-forward <pod-name> <local-port>:<container-port> | Port forward for access |
| kubectl delete pod <pod-name> | Delete a specific pod |

**Scaling & Updating**

| **Command** | **Description** |
| --- | --- |
| kubectl scale deployment <name> --replicas=<num> | Scale a deployment |
| kubectl rollout status deployment/<name> | Check rollout status |
| kubectl rollout undo deployment/<name> | Undo a deployment |
| kubectl edit deployment <name> | Edit deployment live in editor |

**Delete Resources**

| **Command** | **Description** |
| --- | --- |
| kubectl delete -f <file>.yaml | Delete resources defined in file |
| kubectl delete pod <name> | Delete a specific pod |
| kubectl delete service <name> | Delete a service |
| kubectl delete deployment <name> | Delete a deployment |

**Namespace & Context**

| **Command** | **Description** |
| --- | --- |
| kubectl config get-contexts | View available contexts |
| kubectl config use-context <name> | Switch context |
| kubectl config current-context | Show current context |
| kubectl get pods --all-namespaces | List pods in all namespaces |
| kubectl config set-context --current --namespace=<ns> | Set default namespace |

**Advanced & Debug**

| **Command** | **Description** |
| --- | --- |
| kubectl top pod | Show CPU/Memory usage of pods (metrics-server needed) |
| kubectl top node | Show resource usage per node |
| kubectl get componentstatus | Show health of cluster components |
| kubectl cp <pod-name>:/path/in/pod /local/path | Copy file from pod |
| kubectl auth can-i <action> <resource> | Check RBAC permissions |
| kubectl explain <resource> | Explain resource (like man page) |

**Que** – How to round up and round down in Python?

**Ans** – **Round Up** means if you have 4.5, it will be 5

**Round Down** you have 4.5 it will be 4

|  |
| --- |
| Python code |
| import math  num = 4.2  rounded\_up = math.ceil(num)  print(rounded\_up) # Output: 5 |

| **Function** | **Description** |
| --- | --- |
| math.ceil(x) | Rounds **up** to the nearest integer |
| math.floor(x) | Rounds **down** to the nearest integer |
| round(x) | Rounds **to nearest** integer (standard rounding) |

Que – Name of libraries for math in Python.

Ans -

| **Library** | **Purpose** | **code** |
| --- | --- | --- |
| Math | Basic math functions | import math  math.sqrt(16) # 4.0 |
| Numpy | Numerical computations, arrays | import numpy as np  np.array([1, 2, 3]) + 5 |
| Panda | Data handling with math tools | import pandas as pd  # Create a DataFrame  data = {  'Name': ['Amit', 'Priya', 'Raj'],  'Age': [25, 30, 22],  'Score': [85, 92, 88]  }  df = pd.DataFrame(data)  # Display the DataFrame  print(df) |
| Scipy | Scientific computing | from scipy import integrate |
| sympy | Symbolic math | from sympy import symbols, solve  x = symbols('x')  solve(x\*\*2 - 4, x) # [-2, 2] |
| statistics | Descriptive statistics | import statistics  statistics.mean([1, 2, 3]) |
| random | Data handling with math tools | import random  random.randint(1, 10) |
| scikit-learn | Applied statistics & ML |  |
| tensorflow, torch | Deep learning, tensors |  |

    

 