pandas Basic Operations - Quick Reference

Column Creation

```
df['new'] = values
```
Direct assignment

```
df.assign(new=values)
```
Returns new DataFrame

```
df.insert(loc, 'col', values)
```
Insert at position

Arithmetic

```
df['A'] + df['B']
```
Column addition

```
df['A'] * 2
```
Scalar multiplication

```
df['A'].pct_change()
```
Percentage change

Transformations

```
df['A'].apply(func)
```
Apply function

```
df.applymap(func)
```
Element-wise

```
df.transform(func)
```
Same shape output

Sorting

```
df.sort_values('col')
```
Sort by column

```
df.sort_values(ascending=False)
```
Descending order

```
df.sort_index()
```
Sort by index

Aggregation

```
df['A'].value_counts()
```
Frequency count

```
df['A'].unique()
```
Unique values

```
df['A'].nunique()
```
Count unique

Rolling Stats

```
df.rolling(N).mean()
```
Moving average

```
df.rolling(N).std()
```
Rolling std dev

```
df.expanding().sum()
```
Expanding sum

Finance Tips

```
Returns: df['Price'].pct_change()  |  Log Returns: np.log(df['Price']/df['Price'].shift(1))  |  Cumulative: (1 + returns).cumprod() - 1  |  Volatility: returns.rolling(20).std()
```