## Trading Strategy Overview

### 1. Data Preparation

- **Description**: Loads and preprocesses the straddle price data from "SENSEX.csv".
- **Mathematical Notation**: None required for data loading.
- **Purpose**: Ensures data is correctly formatted for time-series analysis.

### 2. Calculate the Average Price for the First 30 Minutes

- **Formula**: $\overline{P} = \frac{1}{30} \sum_{i=1}^{30} P_i$
- **Variables**:
  - $P_i$: Straddle price at minute $i$.
  - $\overline{P}$: Average price for the first 30 minutes.
- **Purpose**: Establishes a baseline to identify significant price movements.

### 3. Determine the Threshold for Significant Price Increase

- **Formula**: $T = 1.3 \times \overline{P}$
- **Variables**:
  - $T$: Threshold for significant price increase.
- **Purpose**: Sets a price level 30% above the average to indicate increased market volatility or interest.

### 4. Monitor and Identify Peak Prices

- **Definition of a Peak**: A price $P_k$ is considered a peak if $P_k > P_{k-1}$ and $P_k > P_{k+1}$.
- **Formula**: None additional for monitoring.
- **Purpose**: Identifies maximum prices during surges, crucial for planning exit strategies.

### 5. Generate Sell Signals Based on Price Drops

- **20% Drop from Peak**:
  - **Formula**: $P_k \leq 0.8 \times \text{Peak Price}$
  - **Purpose**: Triggers a sell when the price falls 20% from any peak, securing profits or mitigating losses.

- **70 Points Drop from Peak**:
  - **Formula**: $P_k \leq \text{Peak Price} - 70$
  - **Purpose**: Provides a fixed measure for selling to safeguard gains or limit losses from any noted peak.

**Conclusion**

- The strategy applies mathematical thresholds to manage options trades effectively, using predefined price movements to trigger sell signals. This approach is designed to maximize gains and minimize risks in volatile market conditions, demonstrating the benefits of a rigorous mathematical strategy in trading.