INDEX and MATCH functions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ProductID** | **Product** | **Category** | **Jan Sales** | **Feb Sales** | **Mar Sales** | **Apr Sales** | **May Sales** |
| 101 | PRODA | Electronics | 120 | 130 | 140 | 150 | 160 |
| 102 | PRODB | Furniture | 150 | 160 | 170 | 180 | 190 |
| 103 | PRODC | Electronics | 200 | 210 | 220 | 230 | 240 |
| 104 | PRODD | Clothing | 90 | 100 | 110 | 120 | 130 |
| 105 | PRODE | Furniture | 220 | 230 | 240 | 250 | 260 |
| 106 | PRODF | Electronics | 130 | 140 | 150 | 160 | 170 |

1. **Use INDEX and MATCH to find the sales for Product C in March.**

***Step1:- Product C (PRODC) in March using the INDEX and MATCH functions***.

1. **INDEX**: Use this function to pull data from a specific cell within a specified range.
2. **MATCH**: Use this function to locate the position of a specified value within a range.

***Step2:- Formula***

=INDEX(D2:H7, MATCH("PRODC", B2:B7, 0), MATCH("Mar Sales", D1:H1, 0))

| **Product** | **Month** | **Sales** |
| --- | --- | --- |
| PRODC | March | 220 |

**2. Use INDEX and MATCH to find the category for Product E.**

***Step 1:- To find the Category for Product E (PRODE) using the INDEX and MATCH functions***

***Step2:- Column B and Categories are in Column C, the formula this***

=INDEX(C2:C7, MATCH("PRODE", B2:B7, 0))

| **Product** | **Category** |
| --- | --- |
| PRODE | Furniture |

1. **Use INDEX and MATCH to find the maximum sales for Product B across all months.**

***Step1:- maximum sales for Product B*** *across all months using the INDEX and MATCH functions*.

***Step2:- Product Names are in Column B ,Sales for each month (Jan, Feb, Mar, Apr, May) are in Columns D to H.***

### *Step3:-Formula*

=MAX(INDEX(D2:H7, MATCH("PRODB", B2:B7, 0), 0))

* INDEX(D2:H7, MATCH("PRODB", B2:B7, 0), 0) returns the entire row of sales data for **Product B**.
* MAX(...) finds the maximum value across that row.

| **Product** | **Max Sales** |
| --- | --- |
| PRODB | 190 |

1. **Use INDEX and MATCH to find the month with the maximum sales for Product A.**

***Step1:- find the month with the maximum sales for Product A (PRODA) using the INDEX and MATCH functions***

***Step 2:- Formula***

1.Find the sales data for Product A.

2.Identify the maximum sales value.

3.Use MATCH to find the position of that maximum value.

=INDEX(D1:H1, MATCH(MAX(INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0)), INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0), 0))

| **Product** | **Month with Max Sales** |
| --- | --- |
| PRODA | May |

1. **Use INDEX, MATCH, and SUMIF to sum the sales for all products in the "Electronics" category for April.**

***Step1:- To sum the sales for all products in the "Electronics" category for April using INDEX, MATCH, and SUMIF***

***Step2:- Formula***

***=SUMIF(C2:C7, "Electronics", D2:D7) + SUMIF(C2:C7, "Electronics", E2:E7) + SUMIF(C2:C7, "Electronics", F2:F7) + SUMIF(C2:C7, "Electronics", G2:G7) + SUMIF(C2:C7, "Electronics", H2:H7)***

| **Category** | **Total April Sales** |
| --- | --- |
| Electronics | 540 |

1. **Use INDEX and MATCH to calculate the average sales for Product D across all months.**

***Step1:- To calculate the average sales for Product D (PRODD) across all months using INDEX and MATCH,***

### *Step2:-Formula*

=AVERAGE(INDEX(D2:H7, MATCH("PRODD", B2:B7, 0), 0))

| **Product** | **Average Sales** |
| --- | --- |
| PRODD | 110 |

1. **Use INDEX and MATCH to find the sales for Product ID 105 in May.**

***Step1:- To find the sales for Product ID 105 in May using the INDEX and MATCH functions***

### *Step2:-Formula*

=INDEX(G2:H7, MATCH(105, A2:A7, 0), 1)

| **Product ID** | **Month** | **Sales** |
| --- | --- | --- |
| 105 | May | 260 |

1. **Use INDEX and MATCH to create a dynamic lookup where the user can input a product and a month, and the formula returns the corresponding sales.**

***Step 1:- Setup***

* + Designate **Cell J1** for the **Product Name** (e.g., PRODA).
  + Designate **Cell J2** for the **Month** (e.g., Mar Sales).
  + Designate **Cell J3** for displaying the **Sales Result**.

### *Step 2:- Sales Data Table*

| **ProductID** | **Product** | **Category** | **Jan Sales** | **Feb Sales** | **Mar Sales** | **Apr Sales** | **May Sales** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 101 | PRODA | Electronics | 120 | 130 | 140 | 150 | 160 |
| 102 | PRODB | Furniture | 150 | 160 | 170 | 180 | 190 |
| 103 | PRODC | Electronics | 200 | 210 | 220 | 230 | 240 |
| 104 | PRODD | Clothing | 90 | 100 | 110 | 120 | 130 |
| 105 | PRODE | Furniture | 220 | 230 | 240 | 250 | 260 |
| 106 | PRODF | Electronics | 130 | 140 | 150 | 160 | 170 |

***Step 3:- Dynamic Lookup Formula***

| **Input** | **Cell Reference** | **Value** |
| --- | --- | --- |
| Product Name | J1 | PRODA |
| Month | J2 | Mar Sales |
| **Sales Result** | J3 | =INDEX(D2  , MATCH(J1, B2  , 0), MATCH(J2, D1  , 0)) |

=INDEX(D2:H7, MATCH(J1, B2:B7, 0), MATCH(J2, D1:H1, 0))

| **Output** | **Cell Reference** | **Value** |
| --- | --- | --- |
| Sales | J3 | 140 |