

2290 lines (2290 loc) · 123 KB

# **Question 1: Mathematical Expressions**

(54 rows affected)

Total execution time: 00:00:00.057

Total execution time: 00:00:00.057				
Out[1]: Name	StandardCost	ListPrice	SalePrice	
LL Touring Seat Assembly	98.77	133.34	113.339000	
ML Touring Seat Assembly	108.99	147.14	125.069000	
HL Touring Seat Assembly	145.87	196.92	167.382000	
Touring Front Wheel	96.7964	218.01	185.308500	
Touring Rear Wheel	108.7844	245.01	208.258500	
Touring-Panniers, Large	51.5625	125.00	106.250000	
HL Touring Frame - Yellow, 60	601.7437	1003.91	853.323500	
LL Touring Frame - Yellow, 62	199.8519	333.42	283.407000	
HL Touring Frame - Yellow, 46	601.7437	1003.91	853.323500	
HL Touring Frame - Yellow, 50	601.7437	1003.91	853.323500	
HL Touring Frame - Yellow, 54	601.7437	1003.91	853.323500	
HL Touring Frame - Blue, 46	601.7437	1003.91	853.323500	
HL Touring Frame - Blue, 50	601.7437	1003.91	853.323500	
HL Touring Frame - Blue, 54	601.7437	1003.91	853.323500	
HL Touring Frame - Blue, 60	601.7437	1003.91	853.323500	
LL Touring Frame - Blue, 50	199.8519	333.42	283.407000	
LL Touring Frame - Blue, 54	199.8519	333.42	283.407000	
LL Touring Frame - Blue, 58	199.8519	333.42	283.407000	
LL Touring Frame - Blue, 62	199.8519	333.42	283.407000	
LL Touring Frame - Yellow, 44	199.8519	333.42	283.407000	
LL Touring Frame - Yellow, 50	199.8519	333.42	283.407000	
LL Touring Frame - Yellow, 54	199.8519	333.42	283.407000	
LL Touring Frame - Yellow, 58	199.8519	333.42	283.407000	
LL Touring Frame - Blue, 44	199.8519	333.42	283.407000	
LL Touring Seat/Saddle	12.0413	27.12	23.052000	
ML Touring Seat/Saddle	17.3782	39.14	33.269000	
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Touring Tire Tube	1.8663	4.99	4.241500
Touring Tire	10.8423	28.99	24.641500
Touring Pedal	35.9596	80.99	68.841500
LL Touring Handlebars	20.464	46.09	39.176500
HL Touring Handlebars	40.6571	91.57	77.834500
Touring-2000 Blue, 60	755.1508	1214.85	1032.622500
Touring-1000 Yellow, 46	1481.9379	2384.07	2026.459500
Touring-1000 Yellow, 50	1481.9379	2384.07	2026.459500
Touring-1000 Yellow, 54	1481.9379	2384.07	2026.459500
Touring-1000 Yellow, 60	1481.9379	2384.07	2026.459500
Touring-3000 Blue, 54	461.4448	742.35	630.997500
Touring-3000 Blue, 58	461.4448	742.35	630.997500
Touring-3000 Blue, 62	461.4448	742.35	630.997500
Touring-3000 Yellow, 44	461.4448	742.35	630.997500
Touring-3000 Yellow, 50	461.4448	742.35	630.997500
Touring-3000 Yellow, 54	461.4448	742.35	630.997500
Touring-3000 Yellow, 58	461.4448	742.35	630.997500
Touring-3000 Yellow, 62	461.4448	742.35	630.997500
Touring-1000 Blue, 46	1481.9379	2384.07	2026.459500
Touring-1000 Blue, 50	1481.9379	2384.07	2026.459500
Touring-1000 Blue, 54	1481.9379	2384.07	2026.459500
Touring-1000 Blue, 60	1481.9379	2384.07	2026.459500
Touring-2000 Blue, 46	755.1508	1214.85	1032.622500
Touring-2000 Blue, 50	755.1508	1214.85	1032.622500
Touring-2000 Blue, 54	755.1508	1214.85	1032.622500
Touring-3000 Blue, 44	461.4448	742.35	630.997500
Touring-3000 Blue, 50	461.4448	742.35	630.997500

### Question 2: How Many Rows?

Answer: 54 rows.

# Question 3: Rounding Sales by Year

```
In [2]: SELECT
    YEAR(OrderDate) AS Year,
    CONVERT(varchar, ROUND(SUM(SubTotal), -3), 1) AS SalesRounded
    FROM Sales.SalesOrderHeader
    GROUP BY YEAR(OrderDate)
    ORDER BY Year;
```

```
(4 rows affected)
```

Total execution time: 00:00:00.071

```
Out[2]: Year SalesRounded

2011 12,642,000.00

2012 33,524,000.00

2013 43,622,000.00

2014 20,058,000.00
```

### Question 4: Year with the Highest Sales Value

Answer: Year 2013 SalesRounded 43622000.00

### Question 5: Rounding Sales by Month in the Highest Sales Year

#### (12 rows affected)

Total execution time: 00:00:00.084

```
Out[4]: Month SalesRounded
                     2,088,000.00
                1
                2
                     2,317,000.00
                     3,412,000.00
                     2,532,000.00
                5
                     3,246,000.00
                6
                     5,081,000.00
                7
                     4,896,000.00
                8
                     3,334,000.00
                9
                     4,533,000.00
              10
                     4,796,000.00
              11
                     3,312,000.00
```

12

#### Question 6: Month with the Highest Sales Value

Answer: 6th month has the Highest Sales Value of 5081000.00

#### **Question 7: Rounding Up Weight for Shipping**

4,075,000.00

```
In [5]: SELECT
     Name,
     Weight,
     CEILING(Weight / 10.0) * 10 AS EstimatedShippingWeight
     FROM Production.Product
    WHERE Weight IS NOT NULL;
```

(205 rows affected)

Total execution time: 00:00:00.089		
Out[5]: Name	Weight	EstimatedShippingWeight
LL Mountain Rim	435.00	440
ML Mountain Rim	450.00	450
HL Mountain Rim	400.00	400
LL Road Rim	445.00	450
ML Road Rim	450.00	450
HL Road Rim	400.00	400
Touring Rim	460.00	460
HL Road Frame - Black, 58	2.24	10
HL Road Frame - Red, 58	2.24	10
HL Road Frame - Red, 62	2.30	10
HL Road Frame - Red, 44	2.12	10
HL Road Frame - Red, 48	2.16	10
HL Road Frame - Red, 52	2.20	10
HL Road Frame - Red, 56	2.24	10
LL Road Frame - Black, 58	2.46	10
LL Road Frame - Black, 60	2.48	10
LL Road Frame - Black, 62	2.50	10
LL Road Frame - Red, 44	2.32	10
LL Road Frame - Red, 48	2.36	10
LL Road Frame - Red, 52	2.40	10
LL Road Frame - Red, 58	2.46	10
LL Road Frame - Red, 60	2.48	10
LL Road Frame - Red, 62	2.50	10
ML Road Frame - Red, 44	2.22	10
ML Road Frame - Red, 48	2.26	10
ML Road Frame - Red, 52	2.30	10
ML Road Frame - Red, 58	2.36	10
ML Road Frame - Red, 60	2.38	10
LL Road Frame - Black, 44	2.32	10

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LL Road Frame - Black, 48	2.36	10
LL Road Frame - Black, 52	2.40	10
HL Mountain Frame - Silver, 42	2.72	10
HL Mountain Frame - Silver, 44	2.76	10
HL Mountain Frame - Silver, 48	2.80	10
HL Mountain Frame - Silver, 46	2.84	10
HL Mountain Frame - Black, 42	2.72	10
HL Mountain Frame - Black, 44	2.76	10
HL Mountain Frame - Black, 48	2.80	10
HL Mountain Frame - Black, 46	2.84	10
HL Mountain Frame - Black, 38	2.68	10
HL Mountain Frame - Silver, 38	2.68	10
Road-150 Red, 62	15.00	20
Road-150 Red, 44	13.77	20
Road-150 Red, 48	14.13	20
Road-150 Red, 52	14.42	20
Road-150 Red, 56	14.68	20
Road-450 Red, 58	17.79	20
Road-450 Red, 60	17.90	20
Road-450 Red, 44	16.77	20
Road-450 Red, 48	17.13	20
Road-450 Red, 52	17.42	20
Road-650 Red, 58	19.79	20
Road-650 Red, 60	19.90	20
Road-650 Red, 62	20.00	20
Road-650 Red, 44	18.77	20
Road-650 Red, 48	19.13	20
Road-650 Red, 52	19.42	20
Road-650 Black, 58	19.79	20
Road-650 Black, 60	19.90	20
Road-650 Black, 62	20.00	20
Road-650 Black, 44	18.77	20
Road-650 Black, 48	19.13	20
Road-650 Black, 52	19.42	20
Mountain-100 Silver, 38	20.35	30
Mountain-100 Silver, 42	20.77	30
Mountain-100 Silver 44	21 13	30

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Mountain-100 Silver, 48	21.42	30
Mountain-100 Black, 38	20.35	30
Mountain-100 Black, 42	20.77	30
Mountain-100 Black, 44	21.13	30
Mountain-100 Black, 48	21.42	30
Mountain-200 Silver, 38	23.35	30
Mountain-200 Silver, 42	23.77	30
Mountain-200 Silver, 46	24.13	30
Mountain-200 Black, 38	23.35	30
Mountain-200 Black, 42	23.77	30
Mountain-200 Black, 46	24.13	30
Mountain-300 Black, 38	25.35	30
Mountain-300 Black, 40	25.77	30
Mountain-300 Black, 44	26.13	30
Mountain-300 Black, 48	26.42	30
Road-250 Red, 44	14.77	20
Road-250 Red, 48	15.13	20
Road-250 Red, 52	15.42	20
Road-250 Red, 58	15.79	20
Road-250 Black, 44	14.77	20
Road-250 Black, 48	15.13	20
Road-250 Black, 52	15.42	20
Road-250 Black, 58	15.68	20
Road-550-W Yellow, 38	17.35	20
Road-550-W Yellow, 40	17.77	20
Road-550-W Yellow, 42	18.13	20
Road-550-W Yellow, 44	18.42	20
Road-550-W Yellow, 48	18.68	20
ML Mountain Frame - Black, 38	2.73	10
LL Road Front Wheel	900.00	900
ML Road Front Wheel	850.00	850
HL Road Front Wheel	650.00	650
ML Road Frame-W - Yellow, 38	2.18	10
LL Road Rear Wheel	1050.00	1050
ML Road Rear Wheel	1000.00	1000
HL Road Rear Wheel	890.00	890

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ML Mountain Frame - Black, 40	2.77	10
ML Mountain Frame - Black, 44	2.81	10
ML Mountain Frame - Black, 48	2.85	10
ML Road Frame-W - Yellow, 40	2.22	10
ML Road Frame-W - Yellow, 42	2.26	10
ML Road Frame-W - Yellow, 44	2.30	10
ML Road Frame-W - Yellow, 48	2.34	10
HL Road Frame - Black, 62	2.30	10
HL Road Frame - Black, 44	2.12	10
HL Road Frame - Black, 48	2.16	10
HL Road Frame - Black, 52	2.20	10
HL Touring Frame - Yellow, 60	3.08	10
LL Touring Frame - Yellow, 62	3.20	10
HL Touring Frame - Yellow, 46	2.96	10
HL Touring Frame - Yellow, 50	3.00	10
HL Touring Frame - Yellow, 54	3.04	10
HL Touring Frame - Blue, 46	2.96	10
HL Touring Frame - Blue, 50	3.00	10
HL Touring Frame - Blue, 54	3.04	10
HL Touring Frame - Blue, 60	3.08	10
Rear Derailleur	215.00	220
LL Touring Frame - Blue, 50	3.10	10
LL Touring Frame - Blue, 54	3.14	10
LL Touring Frame - Blue, 58	3.16	10
LL Touring Frame - Blue, 62	3.20	10
LL Touring Frame - Yellow, 44	3.02	10
LL Touring Frame - Yellow, 50	3.10	10
LL Touring Frame - Yellow, 54	3.14	10
LL Touring Frame - Yellow, 58	3.16	10
LL Touring Frame - Blue, 44	3.02	10
ML Mountain Frame-W - Silver, 40	2.77	10
ML Mountain Frame-W - Silver, 42	2.81	10
ML Mountain Frame-W - Silver, 46	2.85	10
Rear Brakes	317.00	320
LL Mountain Frame - Silver, 42	2.92	10
LL Mountain Frame - Silver, 44	2.96	10
11.14	2.00	4.0

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LL Mountain Frame - Silver, 48	3.00	10
LL Mountain Frame - Silver, 52	3.04	10
LL Mountain Frame - Black, 42	2.92	10
LL Mountain Frame - Black, 44	2.96	10
LL Mountain Frame - Black, 48	3.00	10
LL Mountain Frame - Black, 52	3.04	10
LL Mountain Pedal	218.00	220
ML Mountain Pedal	215.00	220
HL Mountain Pedal	185.00	190
LL Road Pedal	189.00	190
ML Road Pedal	168.00	170
HL Road Pedal	149.00	150
ML Mountain Frame-W - Silver, 38	2.73	10
LL Mountain Frame - Black, 40	2.88	10
LL Mountain Frame - Silver, 40	2.88	10
Front Derailleur	88.00	90
Front Brakes	317.00	320
LL Crankset	600.00	600
ML Crankset	635.00	640
HL Crankset	575.00	580
Touring-2000 Blue, 60	27.90	30
Touring-1000 Yellow, 46	25.13	30
Touring-1000 Yellow, 50	25.42	30
Touring-1000 Yellow, 54	25.68	30
Touring-1000 Yellow, 60	25.90	30
Touring-3000 Blue, 54	29.68	30
Touring-3000 Blue, 58	29.90	30
Touring-3000 Blue, 62	30.00	30
Touring-3000 Yellow, 44	28.77	30
Touring-3000 Yellow, 50	29.13	30
Touring-3000 Yellow, 54	29.42	30
Touring-3000 Yellow, 58	29.79	30
Touring-3000 Yellow, 62	30.00	30
Touring-1000 Blue, 46	25.13	30
Touring-1000 Blue, 50	25.42	30
Touring-1000 Blue, 54	25.68	30
Touring-1000 Blue, 60	25.90	30
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Touring-2000 Blue, 46	27.13	30
Touring-2000 Blue, 50	27.42	30
Touring-2000 Blue, 54	27.68	30
Road-350-W Yellow, 40	15.35	20
Road-350-W Yellow, 42	15.77	20
Road-350-W Yellow, 44	16.13	20
Road-350-W Yellow, 48	16.42	20
Road-750 Black, 58	20.79	30
Touring-3000 Blue, 44	28.77	30
Touring-3000 Blue, 50	29.13	30
Mountain-400-W Silver, 38	26.35	30
Mountain-400-W Silver, 40	26.77	30
Mountain-400-W Silver, 42	27.13	30
Mountain-400-W Silver, 46	27.42	30
Mountain-500 Silver, 40	27.35	30
Mountain-500 Silver, 42	27.77	30
Mountain-500 Silver, 44	28.13	30
Mountain-500 Silver, 48	28.42	30
Mountain-500 Silver, 52	28.68	30
Mountain-500 Black, 40	27.35	30
Mountain-500 Black, 42	27.77	30
Mountain-500 Black, 44	28.13	30
Mountain-500 Black, 48	28.42	30
Mountain-500 Black, 52	28.68	30
LL Bottom Bracket	223.00	230
ML Bottom Bracket	168.00	170
HL Bottom Bracket	170.00	170
Road-750 Black, 44	19.77	20
Road-750 Black, 48	20.13	30
Road-750 Black, 52	20.42	30

# **Question 8: Product with the Highest Weight**

Answer: LL Road Rear Wheel.

```
In [6]: SELECT TOP 1
Name,
Weight
FROM Production.Product
```

```
WHERE Weight IS NOT NULL
ORDER BY Weight DESC;
```

(1 row affected)

Total execution time: 00:00:00.041

Out[6]: Name Weight

LL Road Rear Wheel 1050.00

#### **Question 9: Treat NULLs as Zeros**

(16 rows affected)

Total execution time: 00:00:00.032

Out[7]:	SpecialOfferID	MaxQty	MaxQtyAlt
	1	NULL	0
	2	14	14
	3	24	24
	4	40	40
	5	60	60
	6	NULL	0
	7	NULL	0
	8	NULL	0

8	NULL	0
9	NULL	0
10	NULL	0
11	NULL	0
12	NULL	0
13	NULL	0
14	NULL	0
15	NULL	0

NULL

### Question 10: Reasons to be Careful with Converting NULLs to Zeros

#### **Explanation:**

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When converting NULL values to zeros, it's important to be careful for several reasons:

0

- 1. **Data Integrity**: Converting NULLs to zeros may misrepresent the data. A NULL value often indicates missing or unknown information, which is different from a value of zero.
- 2. Misleading Analysis: Treating NULLs as zeros can lead to incorrect conclusions. For example, if a

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sales report treats NULLs as zeros, it may appear that certain products or periods had no sales, when in fact the data is simply unavailable.

- 3. **Arithmetic Operations**: Including zeros in calculations may skew results, such as averages or sums, leading to inaccurate metrics.
- 4. **Application Logic**: Business logic and application functionality may rely on the distinction between NULL and zero. Changing NULLs to zeros could affect how the data is processed and interpreted in various parts of the system.