

Excel & Business Math
Video/Class Project #37

Trade Discounts, Series Discounts, Net Cost Equivalents & Wholesale Cost

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1) Retail & Wholesale Businesses. List Price and Wholesale Cost.

1. Retail:

- **Retail Business** = Business that sells to final customer.
- **List Price** = Suggested Retail Price that final customer should pay (full price that customer pays if there is no markdown).

2. Wholesale:

- **Wholesale Business** = Business that sell items to other Businesses, usually in large quantities.
- **Wholesale Cost** = Wholesale Price = Net Cost = COGS = \$ Amount paid from one business to the other for a single item (Discounted List Price). Wholesale Cost is given when one business buys from another business, usually when buying many items ("in bulk").

Retail Business = Business that sells to final customer

List Price = Suggested Retail Price that final customer pays (full price that customer pays if there is no markdown)

Examples:



Final Customer usually pays List Price (Suggested Retail Price) + Tax

Wholesale Business = Business that sell items to other Businesses, usually in large quantities.

Wholesale Cost = Wholesale Price = Net Cost = COGS = \$ Amount paid from one business to the other for a single item (Discounted List Price)




Examples:






Purchaser pays Wholesale Cost (Net Cost) NO Tax Paid

2) Trade Discount \$ Amount.

1. Kite Flight buys the boomerang from Gel Boomerangs for \$13.72 and sells the boomerang to the final customer for 24.95.
2. In order for Kite Flight to make a profit and stay in business, it must buy the boomerang for less than it sells the boomerang.
3. Kite Flight (Retail Business) Pays Gel Boomerangs (Wholesale Business) at a Trade Discount on the List Price.
4. **Trade Discount \$ Amount** (also known as Markup or Gross Profit)
 - The amount of the discount given to a Business when they purchase multiple items to resell to the final customer, resell to other businesses or use in manufacturing products to sell to the final customer.
 - Formula Definition:
 - **Trade Discount \$ Amount = List Price – Wholesale Cost**

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					


\$13.72 each

\$24.95


Gel Boomerangs sells boomerangs to retail store, Kite Flight for \$13.72
Kite Flight sells boomerang to customer for \$24.95

For Kite Flight:

List Price		24.95
Wholesale Cost	-	13.72
Trade Discount \$ Amount =		11.23

=C18-C19

**** Trade Discount \$ Amount is also known as: Markup or Gross Profit.**

3) Single Trade Discount % and Wholesale Cost

1. Many businesses that sell to other businesses do NOT list the “Trade Discount \$ Amount” in the Product Wholesale Cost Catalogs.
2. Rather than list the amount of the discount, a business that sells to another business lists the trade discount as a “Single Trade Discount %”.
3. **Single Trade Discount %**
 - The Single Trade Discount % is the percentage that you multiply by the List Price to get the Trade Discount \$ Amount.
 - Formula Definition:
 - **Trade Discount \$ Amount = List Price * Single Trade Discount %**
 - Key concept for understanding what a Single Trade Discount % is:
 - It communicates how many pennies of discount the buyer gets for every \$1 of List Price.
 - A Trade Discount of 43% tells the buyer that for every \$1 of List Price, the buyer gets a 43 penny discount.
5. **Single Trade Discount Net Cost Equivalent %**
 - Rather than calculate the amount of the Trade Discount \$ Amount, businesses usually calculate the “Single Trade Discount Net Cost Equivalent %” and then uses it to calculate the Wholesale Cost.
 - The Single Trade Discount Net Cost Equivalent % is the percentage that you multiply by the List Price to get the “Wholesale Cost”.
 - Formula Definition:
 - **Single Trade Discount Net Cost Equivalent % = (1 - Trade Discount %)**
 - Key concept for understanding what a Single Trade Discount Net Cost Equivalent % is:
 - It communicates how many pennies of cost the buyer must pay for every \$1 of List Price.
 - A Single Trade Discount Net Cost Equivalent of 57% tells the buyer that for every \$1 of List Price, the buyer must pay 57 pennies.
6. **Wholesale Cost Formulas:**
 - Formula Definition #1:
 - **Wholesale Cost = List Price – Trade Discount \$**
 - Formula Definition #2:
 - **Wholesale Cost = List Price *(1-Trade Discount %)**
 - or
 - **Wholesale Cost = List Price * Single Trade Discount Net Cost Equivalent %**

4) Series Trade Discount Percentages (Chain Discounts)

1. Sometimes businesses use "Series Trade Discounts Percentages" (also known as Chain Discounts) rather than a Single Trade Discount %.
2. A Series Trade Discount Percentage may look like this: 40/10.
 - This means that you would first get a trade discount of 40%, and then then, second, after you apply the 40% discount, you would get an additional trade discount of 10%.
 - For example, if the List price was \$100 and the series discount was 40/10, you could make these calculations to get the Wholesale Cost:
 - $\$100 * 40\% = \40 = amount of first discount
 - $\$100 - \$40 = \$60$ = amount after first discount
 - $\$60 * 10\% = \6 = amount of second discount
 - $\$60 - \$6 = \$54$ = Wholesale Cost
 - To avoid many steps when calculating the Wholesale Cost with a Series Discount, it is easier to calculate the Net Cost Equivalent using the Series Trade Discounts and multiply the Net Cost Equivalent times the List Price. If the List price was \$100 and the series discount was 40/10, you could make these calculations to get the Wholesale Cost:
 - $(1-40\%) * (1-10\%) = 60\% * 90\% = 0.54$ = Net Cost Equivalent = how many pennies of cost the buyer must pay for every \$1 of List Price
 - $\$100 * 0.54 = \54 = Wholesale Cost
 - Excel Example:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2		\$ List Price of Product	100										
3		Series Discount	40/20										
4		1st Trade Discount %	40.00%										
5		2nd Trade Discount %	10.00%										
6		\$ Amount of First Discount	40	=C2*C4		\$ List Price of Product* 1st Trade Discount %							
7		\$ Amount After First Discount	60	=C2-C6		\$ List Price of Product- \$ Amount of First Discount							
8		But then we get a second discount											
9		\$ Amount of Second Discount	6	=C7*C5		2nd Trade Discount %* \$ Amount After First Discount							
10		\$ Amount After Second Discount = Wholesale Cost	54	=C7-C9		\$ Amount After First Discount- \$ Amount of Second Discount							
11													
12		Net Cost Equivalent	0.54	=(1-C4)*(1-C5)		This tells you how many pennies the product will cost for every \$1 of List Price							
13						For a Series Discount: You NEVER add. Multiply compliments instead.							
14		\$ Wholesale Cost	54	=C2*C12									

3. Series Trade Discount Percentages (Chain Discounts)

- When more than one Trade Discount % is given and you must multiply the compliment of each Trade Discount % times the List Price in order to get the Wholesale Cost.
- You NEVER add the Trade Discounts %.
- Wholesale Cost Formula Definition for Series Discount with Two Trade Discounts:
 - **Wholesale Cost = List Price * (1-1st Trade Discount %)*(1-2nd Trade Discount %)**
- Wholesale Cost Formula Definition for Series Discount with Three Trade Discounts:
 - **Wholesale Cost = List Price * (1-1st Trade Discount %)*(1-2nd Trade Discount %)*(1-3rd Trade Discount %)**

5) Net Cost Equivalent & Wholesale Cost

1. Net Cost Equivalent communicates how many pennies of cost the buyer must pay for every \$1 of List Price.
2. Formula Definition for Net Cost Equivalent:
 - Single Trade Discount:
 - **Net Cost Equivalent = (1 – Trade Discount %)**
 - Series Trade Discount with two successive discounts:
 - **Net Cost Equivalent = (1 – 1st Trade Discount %)*(1 – 2nd Trade Discount %)**
 - Series Trade Discount with three successive discounts:
 - **Net Cost Equivalent = (1 – 1st Trade Discount %)*(1 – 2nd Trade Discount %)*(1 – 3rd Trade Discount %)**
3. Never round the Net Cost Equivalent.
4. Formula Definition for Wholesale Cost:
 - **Wholesale Cost = List Price * Net Cost Equivalent**

6) Final Trade Discount %

1. "Final Trade Discount %" communicates how many pennies of discount the buyer gets for every \$1 of List Price.
2. Formula Definition for Final Trade Discount %:
 - **Wholesale Cost = List Price * Net Cost Equivalent**

7) Always True: Net Cost Equivalent + Final Trade Discount % = 1

- Why? Because:
 - Final Trade Discount % = how many pennies of discount the buyer gets for every \$1 of List Price.
 - Net Cost Equivalent = how many pennies of cost the buyer must pay for every \$1 of List Price

8) Wholesale Cost Catalogs that show Trade Discount %.

1. Wholesale Costs Catalogs are sent by one business to another business and show Product Names, Product List Prices, Trade Discount %, and other product and cost information.
2. In this video, we will see these four different types of Wholesale Cost Catalogs:
 - 1) Single Trade Discount % Wholesale Catalog
 - 2) Series Trade Discount % Wholesale Catalog with Two Successive Discounts
 - 3) Series Trade Discount % Wholesale Catalog where 2nd Discount Depends on Quantity Purchased
 - 4) Series Trade Discount % Wholesale Catalog where 2nd & 3rd Discount Depends on Quantity Purchased

9) Single Trade Discount %, Wholesale Catalog

Gel Boomerangs sends Kite Flight a Wholesale Cost Catalog for its boomerang products:

- i. The catalog lists the suggested List Price
- ii. It also lists the "Single Trade Discount %".
- iii. Picture of Wholesale Cost Catalog and the formula to calculate Wholesale Cost for a Bellen Boomerang:

$$\begin{aligned} \text{Bellen Wholesale Cost} &= \\ \text{List Price} * (1 - \text{Single Trade Discount \%}) &= \\ \$24.95 * (1 - 0.45) &= \$13.72 \end{aligned}$$








		Wholesale Cost Catalog	
Boomerangs Available	Picture	List Price	Single Trade Discount %
Quad		\$44.95	43.0%
Bellen		\$24.95	45.0%
Carlota		\$23.50	55.0%
Carlota Doublers		\$79.95	48.0%
Majestic Beaut		\$31.95	54.0%
Sunshine 5 Ply		\$19.99	60.0%
Sunshine 10 Ply		\$23.00	50.0%
Sunset		\$23.50	50.0%
Sunbell		\$26.95	46.0%
Flattop		\$30.95	41.0%
Bellen Dancer		\$29.95	53.0%
Bellen Wind Dancer		\$32.25	53.0%
GelFast		\$23.50	40.0%
Phenolic Sunshine		\$55.50	56.0%
Icarus MTA		\$43.25	47.0%

10) Series Trade Discount % with Two Successive Discounts, Wholesale Catalog

Gel Boomerangs sends Kite Flight a Wholesale Cost Catalog for its boomerang products:

- i. The catalog lists the suggested List Price
- ii. It also lists the "Series Trade Discount %".
- iii. Picture of Wholesale Cost Catalog and the formula to calculate Wholesale Cost for a Bellen Boomerang:

$$\text{Bellen Wholesale Cost} = \text{List Price} * (1 - \text{1st Series Trade Discount \%}) * (1 - \text{2nd Series Trade Discount \%}) = \$24.95 * (1 - 0.45) * (1 - 0.09) = \$12.49$$

















		Wholesale Cost Catalog	
Boomerangs Available	Picture	List Price	Series Trade Discount %
Quad		\$44.95	43/5
Bellen		\$24.95	45/9
Carlota		\$23.50	55/8
Carlota Doublers		\$79.95	48/6
Majestic Beaut		\$31.95	54/9
Sunshine 5 Ply		\$19.99	60/5
Sunshine 10 Ply		\$23.00	50/10
Sunset		\$23.50	50/8
Sunbell		\$26.95	46/8
Flattop		\$30.95	41/10
Bellen Dancer		\$29.95	53/10
Bellen Wind Dancer		\$32.25	53/7
GelFast		\$23.50	40/8
Phenolic Sunshine		\$55.50	56/10
Icarus MTA		\$43.25	47/8

11) Series Trade Discount % where 2nd Discount Depends on Quantity Purchased, Wholesale Catalog

Gel Boomerangs sends Kite Flight a Wholesale Cost Catalog for its boomerang products:

- i. The catalog lists the suggested List Price
- ii. It also lists each "Series Trade Discount %".
- iii. Picture of Wholesale Cost Catalog and the formula to calculate Wholesale Cost for a Bellen Boomerang:

$$\text{Bellen Wholesale Cost (when Quantity } \geq 100) = \text{List Price} * (1 - \text{1st Trade Discount \%}) * (1 - \text{2nd Trade Discount \%}) = \$24.95 * (1 - 0.45) * (1 - 0.09) = \$12.49$$

















		Wholesale Cost Catalog		Additional Discount Given if buy 100 or more
Boomerangs Available	Picture	List Price	1st Trade Discount %	2nd Trade Discount %
Quad		\$44.95	43.0%	5.0%
Bellen		\$24.95	45.0%	9.0%
Carlota		\$23.50	55.0%	8.0%
Carlota Doublers		\$79.95	48.0%	6.0%
Majestic Beaut		\$31.95	54.0%	9.0%
Sunshine 5 Ply		\$19.99	60.0%	5.0%
Sunshine 10 Ply		\$23.00	50.0%	10.0%
Sunset		\$23.50	50.0%	8.0%
Sunbell		\$26.95	46.0%	8.0%
Flattop		\$30.95	41.0%	10.0%
Bellen Dancer		\$29.95	53.0%	10.0%
Bellen Wind Dancer		\$32.25	53.0%	7.0%
GelFast		\$23.50	40.0%	8.0%
Phenolic Sunshine		\$55.50	56.0%	10.0%
Icarus MTA		\$43.25	47.0%	8.0%

12) Series Trade Discount % where 2nd & 3rd Discount Depends on Quantity Purchased, Wholesale Catalog

Gel Boomerangs sends Kite Flight a Wholesale Cost Catalog for its boomerang products:

- i. The catalog lists the suggested List Price
- ii. It also lists each "Series Trade Discount %".
- iii. Picture of Wholesale Cost Catalog and the formula to calculate Wholesale Cost for a Bellen Boomerang:

Bellen Wholesale Cost (when Quantity >= 500) =
 $\text{List Price} * (1 - 1\text{st Trade Discount \%}) * (1 - 2\text{nd Trade Discount \%}) * (1 - 3\text{rd Trade Discount \%}) =$
 $\$24.95 * (1 - 0.45) * (1 - 0.09) * (1 - 0.14) = \10.74

		Wholesale Cost Catalog		Additional Discount Given if buy 100 or more	Further Discount given if Buy 500 or more
Boomerangs Available	Picture	List Price	1st Trade Discount %	2nd Trade Discount %	3rd Trade Discount %
Quad		\$44.95	43.0%	5.0%	15.0%
Bellen		\$24.95	45.0%	9.0%	14.0%
Carlota		\$23.50	55.0%	8.0%	14.0%
Carlota Doublers		\$79.95	48.0%	6.0%	10.0%
Majestic Beaut		\$31.95	54.0%	9.0%	9.0%
Sunshine 5 Ply		\$19.99	60.0%	5.0%	10.0%
Sunshine 10 Ply		\$23.00	50.0%	10.0%	6.0%
Sunset		\$23.50	50.0%	8.0%	9.0%
Sunbell		\$26.95	46.0%	8.0%	8.0%
Flattop		\$30.95	41.0%	10.0%	10.0%
Bellen Dancer		\$29.95	53.0%	10.0%	5.0%
Bellen Wind Dancer		\$32.25	53.0%	7.0%	14.0%
GelFast		\$23.50	40.0%	8.0%	7.0%
Phenolic Sunshine		\$55.50	56.0%	10.0%	10.0%
Icarus MTA		\$43.25	47.0%	8.0%	10.0%

13) Single Trade Discount % Video Example

Gel Boomerangs Sends Kite Flight a Wholesale Catalog:

Single Trade Discount % Wholesale Catalog:

		Wholesale Cost Catalog	
Boomerangs Available	Picture	List Price	Single Trade Discount %
Quad		\$44.95	43.0%
Bellen		\$24.95	45.0%

Long Method 1:

Boomerangs Available	Bellen
\$ List Price	24.95
Single Trade Discount %	45.0%
Trade Discount \$ Amount	11.23
\$ Wholesale Cost for Kite Flight	13.72

How many pennies of discount the buyer gets for every \$1 of List Price

=ROUND(C13*C12,2) = Trade Discount \$ Amount = List Price * Single Trade Discount %

=C12-C14 = Wholesale Cost = List Price – Trade Discount \$

Long Method 2:

Boomerangs Available	Bellen
\$ List Price	24.95
Single Trade Discount %	45.0%
Net Cost Equivalent	55.0%
\$ Wholesale Cost for Kite Flight	13.72

=1-C20 = Net Cost Equivalent = (1 – Trade Discount %) = How many pennies of cost the buyer must pay for every \$1 of List Price

=ROUND(C19*C21,2) = Wholesale Cost = List Price * Net Cost Equivalent

Short Method 1:




Boomerangs Available	Bellen
\$ List Price	24.95
Single Trade Discount %	45.0%
\$ Wholesale Cost for Kite Flight	13.72

=ROUND(C26*(1-C27),2) = Wholesale Cost = List Price * Net Cost Equivalent

14) Series Trade Discount % with Two Successive Discounts Video Example

Gel Boomerangs Sends Kite Flight a Wholesale Catalog:

Series Trade Discount % Wholesale Catalog with Two Successive Discounts:

		Wholesale Cost Catalog	
Boomerangs Available	Picture	List Price	Series Trade Discount %
Quad		\$44.95	43/5
Bellen		\$24.95	45/9

Calculate Wholesale Cost with 2 Sequential Trade Discounts	
Boomerangs Available	Bellen
\$ List Price	24.95
1st Series Trade Discount %	45.0%
2nd Series Trade Discount %	9.0%
\$ Wholesale Cost for Kite Flight	12.49

=ROUND(C12*(1-C13)*(1-C14),2) = Wholesale Cost = List Price * Net Cost Equivalent

15) Series Trade Discount % where 2nd Discount Depends on Quantity Purchased Video Example

Gel Boomerangs Sends Kite Flight a Wholesale Catalog:

Series Trade Discount % Wholesale Catalog where 2nd Discount Depends on Quantity Purchased:

		Wholesale Cost Catalog		Additional Discount Given if buy 100 or more
Boomerangs Available	Picture	List Price	1st Trade Discount %	2nd Trade Discount %
Quad		\$44.95	43.0%	5.0%
Bellen		\$24.95	45.0%	9.0%

Calculate Wholesale Cost with 2 Sequential Trade Discounts based on Quantity Purchased:

Boomerangs Available	Bellen
Quantity Purchased	144
3 \$ List Price	24.95
4 1st Series Trade Discount %	0.45
5 2nd Series Trade Discount %	0.09
\$ Wholesale Cost for Kite Flight	12.49
\$ Total Wholesale Cost	1798.56
Check:	1798.56

=VLOOKUP(\$C\$12,\$B\$7:\$F\$8,A14,FALSE)

=VLOOKUP(\$C\$12,\$B\$7:\$F\$8,A15,FALSE)




=VLOOKUP(\$C\$12,\$B\$7:\$F\$8,A16,FALSE)

=ROUND(C14*(1-C15)*(1-C16),2) = Wholesale Cost = List Price * Net Cost Equivalent

=C17*C13

=ROUND(D8*(1-E8)*(1-F8),2)*C13

16) Series Trade Discount % where 2nd & 3rd Discount Depends on Quantity Purchased Video Example

	A	B	C	D	E	F	G	H
1	Gel Boomerangs Sends Kite Flight a Wholesale Catalog:							
2								
3	Series Trade Discount % Wholesale Catalog where 2nd & 3rd Discount Depends on Quantity Purchased:							
4								
5			Wholesale Cost Catalog			Additional Discount Given if buy 100 or more		Further Discount given if Buy 500 or more
6	Boomerangs Available	Picture	List Price	1st Trade Discount%	2nd Trade Discount %	3rd Trade Discount %		
7	Quad		\$44.95	43.0%	5.0%	15.0%		
8	Bellen		\$24.95	45.0%	9.0%	14.0%		
9								
10	Calculate Wholesale Cost with 3 Sequential Trade Discounts based on Quantity Purchased:							
11								
12	Boomerangs Available	Bellen						
13	Quantity Purchased	500						
14	\$ List Price	24.95						=VLOOKUP(\$C\$12,\$B\$7:\$G\$8,A14,FALSE)
15	1st Series Trade Discount %	0.45						=VLOOKUP(\$C\$12,\$B\$7:\$G\$8,A15,FALSE)
16	2nd Series Trade Discount %	0.09						=VLOOKUP(\$C\$12,\$B\$7:\$G\$8,A16,FALSE)
17	3rd Series Trade Discount %	0.14						
18	\$ Wholesale Cost for Kite Flight	10.74						=ROUND(C14*(1-C15)*(1-C16)*(1-C17),2) = Wholesale Cost = List Price * Net Cost Equivalent
19	\$ Total Wholesale Cost	5370						=C18*C13
20								
21	Check:	5370						=ROUND(D8*(1-E8)*(1-F8)*(1-G8),2)*C13