

Excel & Business Math
Video/Class Project #35

VLOOKUP & MAX Function for Federal Income Tax Payroll Deductions

Topics

1) Federal Income Tax Withholdings Deducted from Employees Paychecks.....	2
2) Video Example 1: Calculate Federal Income Tax Withholdings for Marital Status “Single” and Pay Period Weekly	3
3) Video Example 2: Calculate Federal Income Tax Withholdings for Marital Status “Married” and Pay Period Weekly	4
4) Video Example 3: Calculate Federal Income Tax Withholdings for Marital Status “Single” and Pay Period Weekly for an Entire Payroll Table.....	5
5) Video Example 4: Calculate Federal Income Tax Withholdings for Marital Status “Married” and Pay Period Weekly for an Entire Payroll Table.....	6

1) Federal Income Tax Withholdings Deducted from Employees Paychecks

Federal Income Tax Withholdings
Federal Income Taxes collected by employer and sent to Federal Government on behalf of the employees
You can not wait until the end of the year to pay Federal Income Tax
The " Pay As You Go " concept applies: you must pay your taxes as you earn money.
The deduction from an employee's paycheck is only an estimate .
Why an estimate? Because you can not know the exact amount of your earnings for the year until the year is completed.
The estimate is based on your W-4 Form that you complete when you get a new job.
The estimate is based on:
1) Status you claim such as Single or Married.
2) Number of Allowances you claim (Number of people who you support, 1 Allowance = 1 personal or dependent exemption).
Withholding Allowance refers to an exemption that reduces how much income tax an employer deducts from an employee's paycheck.
Allowances are the governments way of allowing you to keep some of your income and not have it taxed -
the more people you support - the more non-taxed money the government allows you to keep.
Some people take the maximum number of allowances – will receive little refund after tax forms are filed.
Some people take fewer allowances than they qualify for – will receive more refund after tax forms are filed (final income tax form must list correct number of withholdings).

Two methods for employers to determine the amount of federal withholdings:
Wage Bracket Method:
The withholding tax is calculated off the gross earnings for the period
IRS supplies extensive tables to determine how much to withhold from check
Tables cover whether you are married or single, or whether you receive your wages weekly, monthly or other
Percentage Method:
Does not require multiple pages of tables as does the Wage Bracket Method
Involves more steps than the Wage Bracket Method
Both methods are defined by Official IRS Publication 15: (Circular E), Employer's Tax Guide

Form W-4	Employee's Withholding Allowance Certificate	DMS No. 1545-0010 20XX
Department of the Treasury Internal Revenue Service	▶ For Privacy Act and Paperwork Reduction Act Notice, see page 2.	
1 Type or print your first name and middle initial Matte E.	Last name Asino	2 Your social security number 5 4 3 2 4 1 6 8 0
Home address (number and street or rural route) 6242 Baxter Drive	3 <input type="checkbox"/> Single <input checked="" type="checkbox"/> Married <input type="checkbox"/> Married, but withhold at higher Single rate. Note: If married, but legally separated, or spouse is a nonresident alien, check the Single box.	4 If your last name differs from that on your social security card, check here. You must call 1-800-772-1213 for a new card.
City or town, state, and ZIP code Bangor, Maine 04412	5 Total number of allowances you are claiming (from line H above or from the worksheets on page 2 if they apply) 5 0	
6 Additional amount, if any, you want withheld from each paycheck 6 \$	7 I claim exemption from withholding for 1999, and I certify that I meet BOTH of the following conditions for exemption: <ul style="list-style-type: none"> • Last year I had a right to a refund of ALL Federal income tax withheld because I had NO tax liability AND • This year I expect a refund of ALL Federal income tax withheld because I expect to have NO tax liability. If you meet both conditions, write "EXEMPT" here ▶ 7	
Under penalties of perjury, I certify that I am entitled to the number of withholding allowances claimed on this certificate, or I am entitled to claim exempt status.		
Employee's signature (Form is not valid unless you sign it) ▶ Matte E. Asino		Date ▶ October 7, 20-
8 Employer's name and address (Employer: Complete 8 and 10 only if sending to the IRS)	9 Office code (optional)	10 Employer identification number

2) Video Example 1: Calculate Federal Income Tax Withholdings for Marital Status "Single" and Pay Period Weekly

	A	B	C	D	E	F	G	H	I	J	K
4	Percentage Method Tables for Federal Income Tax Withholdings (For Wages Paid in 2018)										
5	Allowance Amounts Table:										
6	Amount for One Withholding Allowance					Single - WEEKLY Payroll Period Tax Table:					
7	(Married or Single)					(a) SINGLE person (including head of household)—					
8											
9	Lookup Columns:		1	2	Lookup Columns:		1	2	3	4	5
10	No of Periods in Year	Payroll Period	Amount for One Withholding Allowance		Taxable Pay Lower Limit		Taxable Pay Upper Limit	Tax Rate	Upper Limit Previous Category	Cumulative Tax From Previous Categories	Tax Rule in Full:
11	52	Weekly	\$79.80		\$0.00	\$71	0%	\$0	\$0.00		
12	26	Biweekly	\$159.60		\$71.01	\$254	10%	\$71	\$0.00	\$0.00 + (Employee's Taxable Pay - \$71) * 10%	
13	24	Semimonthly	\$172.90		\$254.01	\$815	12%	\$254	\$18.30	\$18.30 + (Employee's Taxable Pay - \$254) * 12%	
14	12	Monthly	\$345.80		\$815.01	\$1,658	22%	\$815	\$85.62	\$85.62 + (Employee's Taxable Pay - \$815) * 22%	
15	4	Quarterly	\$1,037.50		\$1,658.01	\$3,100	24%	\$1,658	\$271.08	\$271.08 + (Employee's Taxable Pay - \$1,658) * 24%	
16	2	Semiannually	\$2,075.00		\$3,100.01	\$3,917	32%	\$3,100	\$617.16	\$617.16 + (Employee's Taxable Pay - \$3,100) * 32%	
17	1	Annually	\$4,150.00		\$3,917.01	\$9,687	35%	\$3,917	\$878.60	\$878.60 + (Employee's Taxable Pay - \$3,917) * 35%	
18					\$9,687.01	more	37%	\$9,687	\$2,898.10	\$2,898.10 + (Employee's Taxable Pay - \$9,687) * 37%	
19											
20	Steps to Calculate Federal Income Tax Withholdings using Percentage Method										
21											
22	Employee	Ada Kali		Long Hand Method							
23	Payroll Period	Weekly		Total Allowance:	\$159.60	=C26*C11	Step 1: # Withholding Allowance * One Allowance				
24	Gross Pay	\$1,900.00		Taxable Pay (TP):	\$1,740.40	=C24-F23	Step 2: Gross Pay - Total Allowances				
25	Marital Status	Single		Fed Income Tax:	\$290.86	=J15+(F24-I15)*H15	Step 3: Using Taxable Pay as Lookup Value, Find Row and Follow Tax Rule in Table				
26	# of Withholding Allowances	2									
27	Federal Income Tax Withholdings?			Automatic Method							
28				Taxable Pay (TP):	\$1,740.40	=MAX(C24-C26*C11,0)	Step 1: MAX(Gross Pay - # Withholding Allowance * One Allowance , 0)				
29				Fed Income Tax:	\$290.86		Step 2: V5 +ROUND((TP - V4)*V3 ,2)				
30							=VLOOKUP(F28,F11:J18,5)+ROUND((F28-VLOOKUP(F28,F11:J18,4))*VLOOKUP(F28,F11:J18,3),2)				

3) Video Example 2: Calculate Federal Income Tax Withholdings for Marital Status “Married” and Pay Period Weekly

Percentage Method Tables for Federal Income Tax Withholdings (For Wages Paid in 2018)								
Allowance Amounts Table:								
Amount for One Withholding Allowance (Married or Single)			Married - WEEKLY Payroll Period Tax Table (b) MARRIED person—					
Lookup Columns:		1	2	Lookup Columns:				
No of Periods in Year	Payroll Period	Amount for One Withholding Allowance	Taxable Pay Lower Limit	Taxable Pay Upper Limit	Tax Rate	Upper Limit Previous Category	Cumulative Tax From Previous Categories	Tax Rule in Full:
52	Weekly	\$79.80	\$0.00	\$222	0%	\$0	\$0.00	
26	Biweekly	\$159.60	\$222.01	\$588	10%	\$222	\$0.00	\$0.00 + (Employee's Taxable Pay - \$222) * 10%
24	Semimonthly	\$172.90	\$588.01	\$1,711	12%	\$588	\$36.60	\$36.60 + (Employee's Taxable Pay - \$588) * 12%
12	Monthly	\$345.80	\$1,711.01	\$3,395	22%	\$1,711	\$171.36	\$171.36 + (Employee's Taxable Pay - \$1,711) * 22%
4	Quarterly	\$1,037.50	\$3,395.01	\$6,280	24%	\$3,395	\$541.84	\$541.84 + (Employee's Taxable Pay - \$3,395) * 24%
2	Semiannually	\$2,075.00	\$6,280.01	\$7,914	32%	\$6,280	\$1,234.24	\$1,234.24 + (Employee's Taxable Pay - \$6,280) * 32%
1	Annually	\$4,150.00	\$7,914.01	\$11,761	35%	\$7,914	\$1,757.12	\$1,757.12 + (Employee's Taxable Pay - \$7,914) * 35%
			\$11,761.01	more	37%	\$11,761	\$3,103.57	\$3,103.57 + (Employee's Taxable Pay - \$11,761) * 37%

Steps to Calculate Federal Income Tax Withholdings using Percentage Method

Employee	Ming Pham	Long Hand Method	
Payroll Period	Weekly	Total Allowance:	\$319.20 =C26*C11
Gross Pay	\$4,010.00	Taxable Pay (TP):	\$3,690.80 =C24-F23
Marital Status	Married	Fed Income Tax:	\$612.83 =J15+(F24-I15)*H15
# of Withholding Allowances	4	Step 1: # Withholding Allowance * One Allowance	
Federal Income Tax Withholdings?		Step 2: Gross Pay - Total Allowances	
		Step 3: Using Taxable Pay as Lookup Value, Find Row and Follow Tax Rule in Table	
		Automatic Method	
		Taxable Pay (TP):	\$3,690.80 =MAX(C24-C26*C11,0)
		Fed Income Tax:	\$612.83
			=VLOOKUP(F28,F11:J18,5)+ROUND((F28-VLOOKUP(F28,F11:J18,4))*VLOOKUP(F28,F11:J18,3),2)
			Step 1: MAX(Gross Pay - # Withholding Allowance * One Allowance , 0)
			Step 2: V5 +ROUND((TP - V4)*V3 ,2)

4) Video Example 3: Calculate Federal Income Tax Withholdings for Marital Status "Single" and Pay Period Weekly for an Entire Payroll Table

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Single WEEKLY Tax Table ==>>	Taxable Pay Lower Limit (1)	Taxable Pay Upper Limit (2)	Tax Rate (3)	Upper Limit Previous Category (4)	Cumulative Tax From Previous Categories (5)	Tax Rule in Full:				Payroll Period for ALL Employees	Amount for 1 Weekly Allowance	Marital Status for ALL Employees in this table
2		\$0.00	\$71	0%	\$0	\$0.00					Weekly	79.8	Single
3		\$71.01	\$254	10%	\$71	\$0.00	\$0.00 + 10% * excess over \$71						
4		\$254.01	\$815	12%	\$254	\$18.30	\$18.30 + 12% * excess over \$254						
5		\$815.01	\$1,658	22%	\$815	\$85.62	\$85.62 + 22% * excess over \$815						
6		\$1,658.01	\$3,100	24%	\$1,658	\$271.08	\$271.08 + 24% * excess over \$1,658						
7		\$3,100.01	\$3,917	32%	\$3,100	\$617.16	\$617.16 + 32% * excess over \$3,100						
8		\$3,917.01	\$9,687	35%	\$3,917	\$878.60	\$878.60 + 35% * excess over \$3,917						
9		\$9,687.01	more	37%	\$9,687	\$2,898.10	\$2,898.10 + 37% * excess over \$9,687						
10												V5-ROUND((TGP-V4)*V3,2)	
11	Employee	Gross Pay	# Allowances	Taxable Pay	Cumulative Tax From Previous Categories (5)	Upper Limit Previous Category (4)	Tax Rate (3)	Federal Income Tax Withholding	Net Pay After Fed I.T.			Federal Income Tax Withholding	
12	Mina Cordell	\$5,223.61	1	\$5,143.81	\$878.60	\$3,917.00	0.35	\$1,307.98	\$3,915.63			\$1,307.98	
13	Tyisha Fraser	\$10,018.08	3	\$9,778.68	\$2,898.10	\$9,687.00	0.37	\$2,932.02	\$7,086.06			\$2,932.02	
14	Lawrence Wynn	\$4,754.18	1	\$4,674.38	\$878.60	\$3,917.00	0.35	\$1,143.68	\$3,610.50			\$1,143.68	
15	Hildred Purnell	\$1,579.84	1	\$1,500.04	\$85.62	\$815.00	0.22	\$236.33	\$1,343.51			\$236.33	
16	Coleman Lipscomb	\$2,143.89	1	\$2,064.09	\$271.08	\$1,658.00	0.24	\$368.54	\$1,775.35			\$368.54	
17	Ciara Jay	\$55.00	1	\$0.00	\$0.00	\$0.00	0	\$0.00	\$55.00			\$0.00	
18	Nova Hazel	\$1,414.13	2	\$1,254.53	\$85.62	\$815.00	0.22	\$182.32	\$1,231.81			\$182.32	
19	Katelynn Turnbull	\$3,373.93	1	\$3,294.13	\$617.16	\$3,100.00	0.32	\$679.28	\$2,694.65			\$679.28	
20	Virgen Trapp	\$689.77	0	\$689.77	\$18.30	\$254.00	0.12	\$70.59	\$619.18			\$70.59	
21	Ninfa Desimone	\$2,664.73	1	\$2,584.93	\$271.08	\$1,658.00	0.24	\$493.54	\$2,171.19			\$493.54	
22													
23				Formula in D12:		Formula in F12:		Formula in H12:					
24				=MAX(B12-C12*\$L\$2,0)		=VLOOKUP(D12,\$B\$2:\$F\$9,4)		=E12+ROUND((D12-F12)*G12,2)					
25					Formula in E12:		Formula in G12:		Formula in I12:				
26					=VLOOKUP(D12,\$B\$2:\$F\$9,5)		=VLOOKUP(D12,\$B\$2:\$F\$9,3)		=B12-H12				
27													
28													
29						Formula in L12:							
30						=VLOOKUP(D12,\$B\$2:\$F\$9,5)+ROUND((D12-VLOOKUP(D12,\$B\$2:\$F\$9,4))*VLOOKUP(D12,\$B\$2:\$F\$9,3),2)							

5) Video Example 4: Calculate Federal Income Tax Withholdings for Marital Status “Married” and Pay Period Weekly for an Entire Payroll Table

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Married WEEKLY Tax Table ==>>	Taxable Pay Lower Limit (1)	Taxable Pay Upper Limit (2)	Tax Rate (3)	Upper Limit Previous Category (4)	Cumulative Tax From Previous Categories (5)	Tax Rule in Full:			Payroll Period for ALL Employees	Amount for 1 Weekly Allowance	Marital Status for ALL Employees in this table	
2		\$0.00	\$222	0%	\$0	\$0.00				Weekly	79.8	Single	
3		\$222.01	\$588	10%	\$222	\$0.00	\$0.00 + 10% * excess over \$222						
4		\$588.01	\$1,711	12%	\$588	\$36.60	\$36.60 + 12% * excess over \$588						
5		\$1,711.01	\$3,395	22%	\$1,711	\$171.36	\$171.36 + 22% * excess over \$1,711						
6		\$3,395.01	\$6,280	24%	\$3,395	\$541.84	\$541.84 + 24% * excess over \$3,395						
7		\$6,280.01	\$7,914	32%	\$6,280	\$1,234.24	\$1,234.24 + 32% * excess over \$6,280						
8		\$7,914.01	\$11,761	35%	\$7,914	\$1,757.12	\$1,757.12 + 35% * excess over \$7,914						
9		\$11,761.01	more	37%	\$11,761	\$3,103.57	\$3,103.57 + 37% * excess over \$11,761					V5-ROUND((TGP-V4)*V3,2)	
10													
11	Employee	Gross Pay	# Allowances	Taxable Pay	Cumulative Tax From Previous Categories (5)	Upper Limit Previous Category (4)	Tax Rate (3)	Federal Income Tax Withholding	Net Pay After Fed I.T.		Federal Income Tax Withholding		
12	Vanda Milton	\$8,195.61	2	\$8,036.01	\$1,757.12	\$7,914.00	0.35	\$1,799.82	\$6,395.79		\$1,799.82		
13	Chantel Hadden	\$8,099.08	6	\$7,620.28	\$1,234.24	\$6,280.00	0.32	\$1,663.13	\$6,435.95		\$1,663.13		
14	Ruby Gleason	\$6,853.18	4	\$6,533.98	\$1,234.24	\$6,280.00	0.32	\$1,315.51	\$5,537.67		\$1,315.51		
15	Monroe Mcgrath	\$4,341.84	5	\$3,942.84	\$541.84	\$3,395.00	0.24	\$673.32	\$3,668.52		\$673.32		
16	Kanasha Shin	\$12,327.89	5	\$11,928.89	\$3,103.57	\$11,761.00	0.37	\$3,165.69	\$9,162.20		\$3,165.69		
17	Jeannine Whitehead	\$1,478.30	2	\$1,318.70	\$36.60	\$588.00	0.12	\$124.28	\$1,354.02		\$124.28		
18	Dede Sawyers	\$148.95	2	\$0.00	\$0.00	\$0.00	0	\$0.00	\$148.95		\$0.00		
19	Thresa Carver	\$5,460.93	5	\$5,061.93	\$541.84	\$3,395.00	0.24	\$941.90	\$4,519.03		\$941.90		
20	Chance Hatley	\$1,255.77	7	\$697.17	\$36.60	\$588.00	0.12	\$49.70	\$1,206.07		\$49.70		
21	Benton Miner	\$2,427.73	2	\$2,268.13	\$171.36	\$1,711.00	0.22	\$293.93	\$2,133.80		\$293.93		
22													
23				Formula in D12:		Formula in F12:		Formula in H12:					
24				=MAX(B12-C12*\$L\$2,0)		=VLOOKUP(D12,\$B\$2:\$F\$9,4)		=E12+ROUND((D12-F12)*G12,2)					
25					Formula in E12:		Formula in G12:		Formula in I12:				
26					=VLOOKUP(D12,\$B\$2:\$F\$9,5)		=VLOOKUP(D12,\$B\$2:\$F\$9,3)		=B12-H12				
27													
28													
29						Formula in L12:							
30						=VLOOKUP(D12,\$B\$2:\$F\$9,5)+ROUND((D12-VLOOKUP(D12,\$B\$2:\$F\$9,4))*VLOOKUP(D12,\$B\$2:\$F\$9,3),2)							