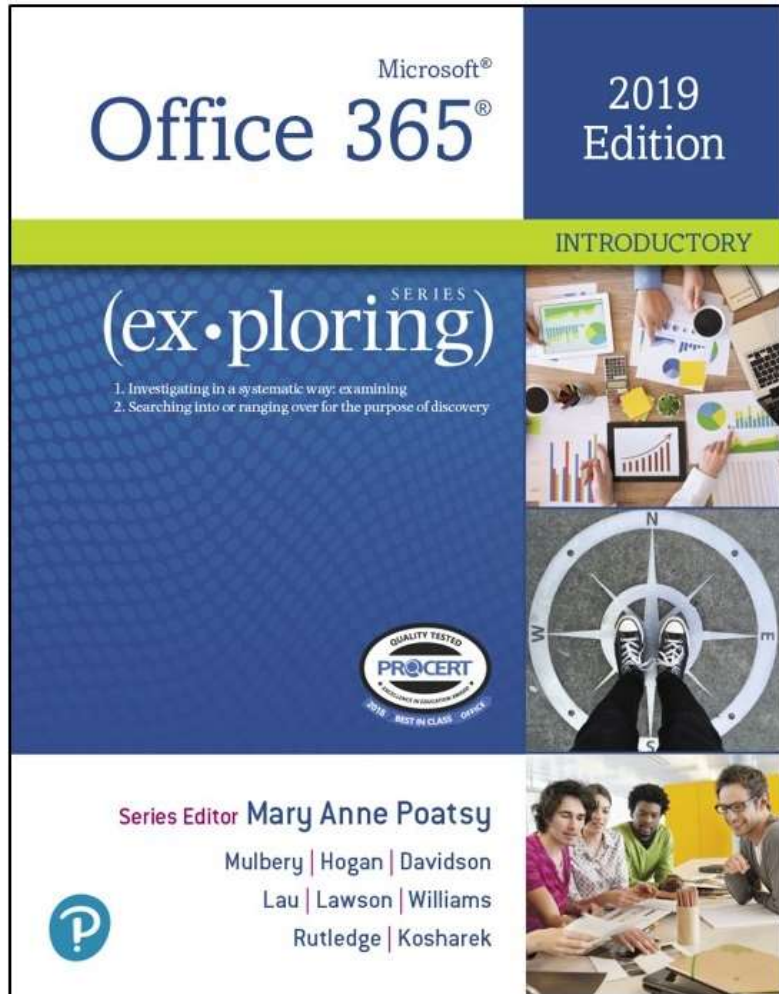


Exploring Microsoft Office 365

Introductory



Chapter 2

Formulas and Functions

Learning Objectives (1 of 2)

2.1 Use Relative, Absolute, and Mixed Cell References in Formulas

2.2 Insert a Function

2.3 Insert Basic Math and Statistics Functions

2.4 Use Date Functions

Learning Objectives (2 of 2)

2.5 Use Lookup Functions

2.6 Use the Pmt Function

2.7 Use the If Function

Using Relative, Absolute, and Mixed Cell References in Formulas (1 of 3)

Original formula entered in cell F2

	A	B	C	D	E	F	G
1	Input Area			House Cost	Down Payment	Amount Financed	Amount Financed Formula
2	# Pmts Per Year	12		\$ 300,000.00	\$45,000.00	\$ 255,000.00	=D2-E2
3	PMI Rate	0.3%		\$ 250,000.00	\$37,500.00	\$ 212,500.00	=D3-E3
4	Down Pmt Rate	15%		\$ 200,000.00	\$30,000.00	\$ 170,000.00	=D4-E4

Relative cell references in original formula

Cell reference (row number) adjusted in copied formulas

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Using Relative, Absolute, and Mixed Cell References in Formulas (2 of 3)

SUM		X	✓	f _x	=D3*\$B\$4
	A	B	C	D	E
1	Input Area		House Cost	Down Payment	Down Payment Formula
2	# Pmts Per Year	12	\$ 300,000.00	\$45,000.00	=D2*\$B\$4
3	PMI Rate	0.3%	\$ 250,000.00	=D3*\$B\$4	=D3*\$B\$5
4	Down Pmt Rate	15%	\$ 200,000.00	\$30,000.00	=D4*\$B\$6

Relative (D3) and absolute (\$B\$4) cell references in first copied formula

Result of formula entered in cell E2

Formulas used in column E

Cell containing data
for absolute reference

Absolute cell references (\$B\$4) remain the same in copied formulas

Using Relative, Absolute, and Mixed Cell References in Formulas (3 of 3)

SUM		X ✓ f _x		=D3*B\$4			
	A	B	C	D	E	F	G
1	Input Area			House Cost	Down Payment		
2	# Pmts Per Year	12		\$ 300,000.00	\$ 45,000.00		
3	PMI Rate	0.3%		\$ 250,000.00	=D3*B\$4		
4	Down Pmt Rate	15%		\$ 200,000.00	\$ 30,000.00		
5							

Mixed cell reference
in original formula

Row numbers stay the same for
copied mixed cell references

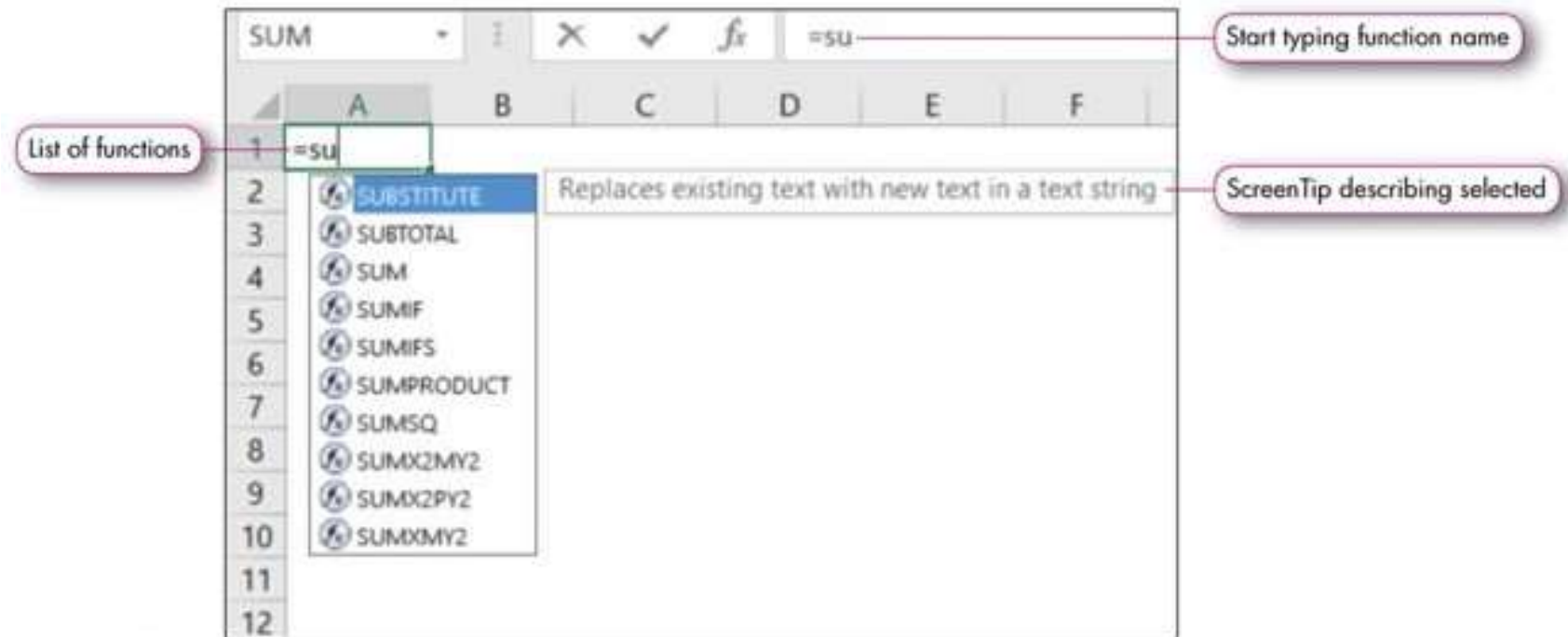
Copied formulas still point to cell
B4 with mixed cell reference

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Inserting a Function (1 of 4)

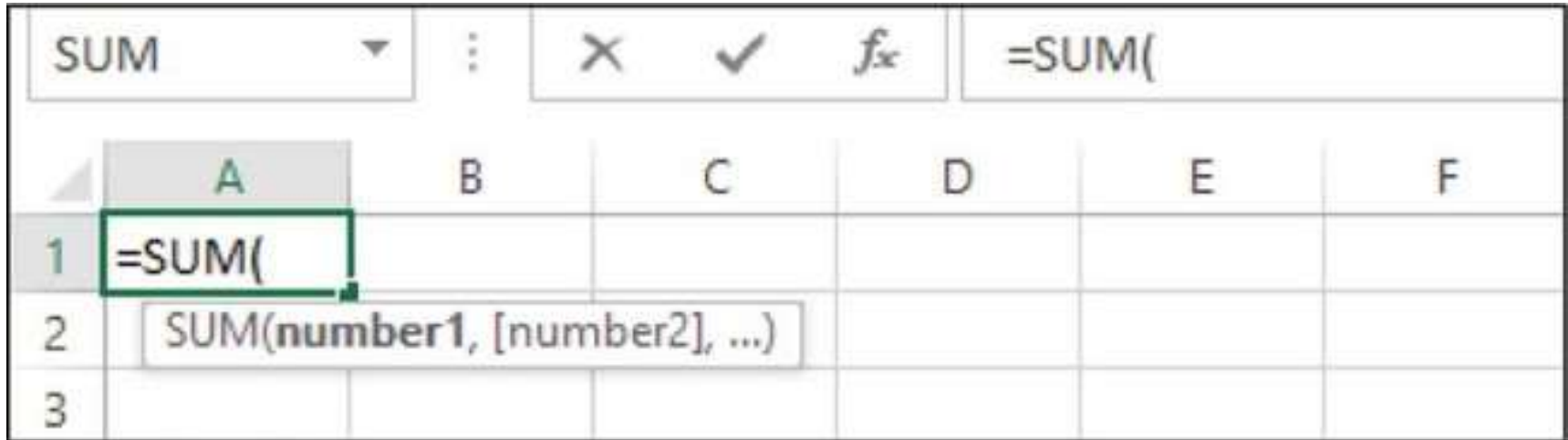
Category	Description
Date and Time	Provides methods for manipulating date and time values.
Financial	Performs financial calculations, such as payments, rates, present value, and future value.
Logical	Performs logical tests and returns the value of the tests. Includes logical operators for combined tests, such as AND, OR, and NOT.
Lookup and Reference	Looks up values, creates links to cells, or provides references to cells in a worksheet.
Math and Trig	Performs standard math and trigonometry calculations.
Statistical	Performs common statistical calculations, such as averages and standard deviations.

Inserting a Function (2 of 4)



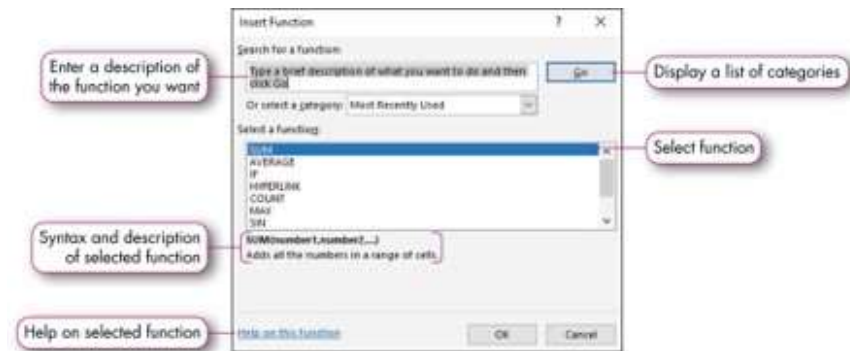
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Inserting a Function (3 of 4)

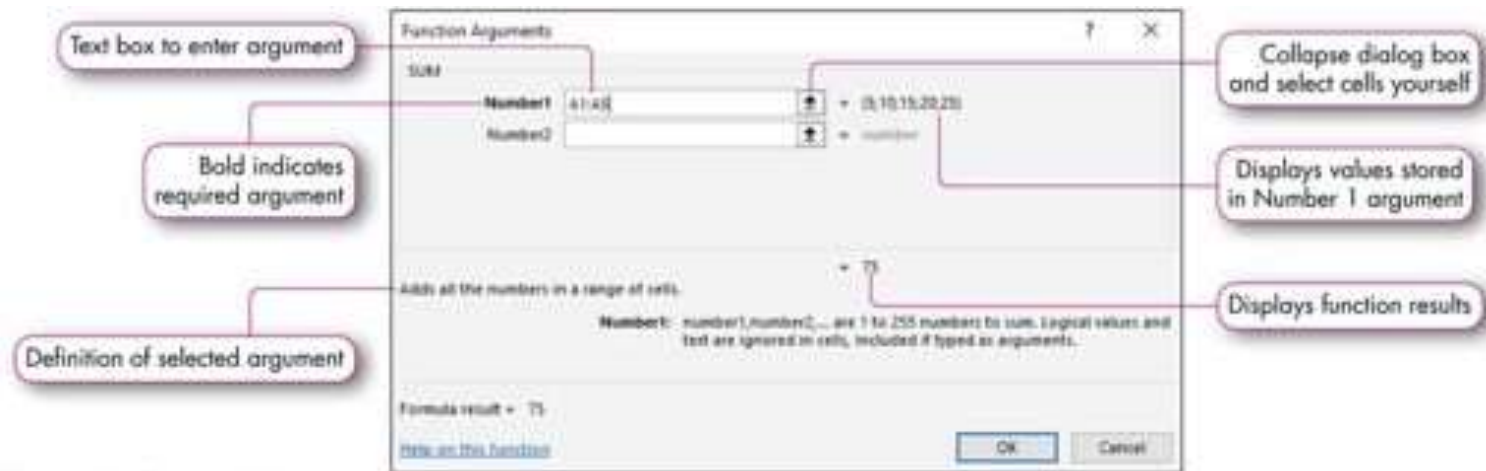


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Inserting a Function (4 of 4)



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Inserting Basic Math and Statistics Functions (1 of 3)

- =SUM(number1, [number2],...)
 =SUM(A2:A14)
- =AVERAGE(number1, [number2],...)
 =AVERAGE(A2:A14)
- =MEDIAN(number1, [number2],...)
 =MEDIAN(A2:A14)
- =MIN(number1, [number2],...)
 =MIN(A2:A14)

Inserting Basic Math and Statistics Functions (2 of 3)

- =MAX(number1, [number2],...)
=MAX(A2:A14)
- COUNT(value1, [value2],...)
=COUNT(A2:A14)
- =COUNTBLANK(range)
=COUNTBLANK(A2:A14)
- =COUNTA(value1, [value2],...)
=COUNTA(A2:A14)
- =ROUND(number, num_digits)
=ROUND(A2, 2)

Inserting Basic Math and Statistics Functions (3 of 3)

The screenshot displays an Excel spreadsheet with the following data:

1	A	B	C	D	E
	Scores	Measure	Statistics	Formula	
2	98	Total of all scores	898	=SUM(A2:A14)	
3	94	Average score	81.63636	=AVERAGE(A2:A14)	
4	92	Median score	86	=MEDIAN(A2:A14)	
5	92	Low score	50	=MIN(A2:A14)	
6	N/A	High score	98	=MAX(A2:A14)	
7	90	No. of numeric cells	11	=COUNT(A2:A14)	
8	86	No. of empty cells	1	=COUNTBLANK(A2:A14)	
9		No. of non-empty cells	12	=COUNTA(A2:A14)	
10	84	Rounded average score	81.64	=ROUND(AVERAGE(A2:A14),2)	
11	82				
12	80				
13	50				
14	50				
15	898				
16					

The Quick Analysis tool is open, showing the 'Totals' tab. The 'Sum' option is selected, and the result '898' is displayed in cell B15. The 'Result preview' shows the sum of the selected range (A2:A14).

Annotations in the image include:

- Selected range:** Points to the range A2:A14.
- Quick Analysis button:** Points to the Quick Analysis icon in cell B15.
- SUM function results:** Points to the result '898' in cell D2.
- SUM function:** Points to the formula '=SUM(A2:A14)' in cell E2.
- Result preview:** Points to the 'Result preview' section of the Quick Analysis tool.
- Display the Totals gallery:** Points to the 'Totals' tab in the Quick Analysis tool.

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Using Date Functions)

- =TODAY()
= TODAY()
- =NOW()
= NOW()

Using Lookup Functions) (1 of 3)

- =VLOOKUP(lookup_value, table_array, col_index_num,[range_lookup])
= VLOOKUP(E3,\$A\$3:\$B\$7,2)

The image shows an Excel spreadsheet with a formula bar at the top displaying `=VLOOKUP(E3,$A$3:$B$7,2)`. The spreadsheet has two main sections: a 'Grading Scale' table in columns A and B, and a 'Partial Gradebook' table in columns D, E, and F. The 'Grading Scale' table lists breakpoint scores and corresponding letter grades. The 'Partial Gradebook' table lists student names, their final scores, and their letter grades. A callout box points to cell E3 (85) with the text 'Value (Final Score) to look up'. Another callout box points to the formula bar with the text 'Use second column within the table to return letter grade'. A third callout box points to the range A3:B7 with the text 'Table array range'.

Grading Scale		Partial Gradebook		
Breakpoint Grade		Names	Final Score	Letter Grade
0	F	Abbott	85	B
60	D	Carter	69	D
70	C	Hon	90	A
80	B	Jackson	74	C
90	A	Miller	80	B
		Nelsen	78	C

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Using Lookup Functions) (2 of 3)

Range	Grade
0	F
60	D
70	C
80	B
90	A

Using Lookup Functions) (3 of 3)

- =HLOOKUP(lookup_value, table_array,
col_index_num,[range_lookup])
= HLOOKUP(E3,\$A\$3:\$B\$7,2)

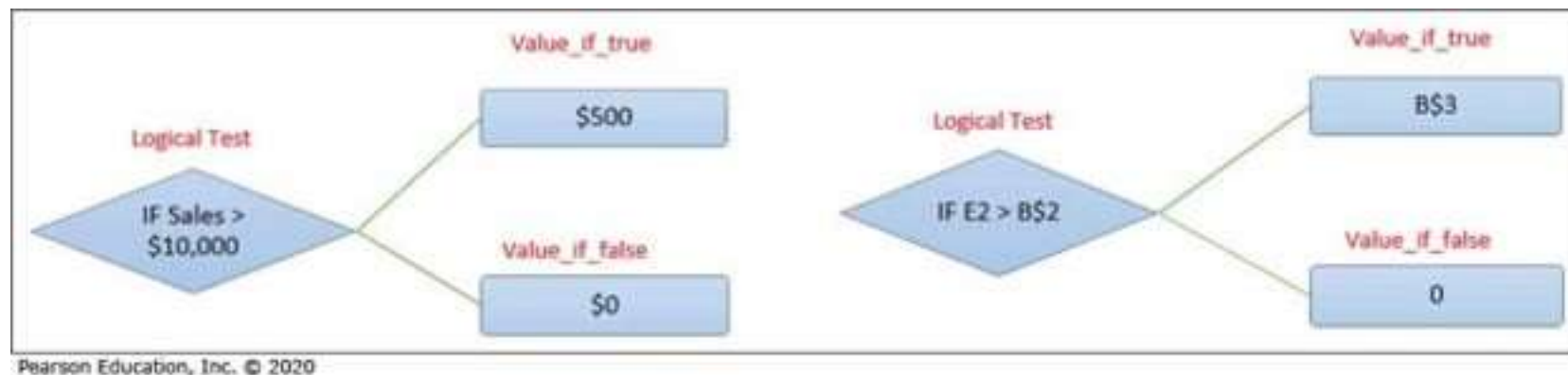
Range	0	60	70	80	90
Grade	F	D	C	B	A

Using The PMT Function)

- =PMT(rate, nper, pv, [fv], [type])
= PMT(G9/\$B\$5,F9*\$B\$5, – D9)

Using The IF Function) (1 of 3)

- =IF((logical_test,[value_if_true],[value_if_false])
= IF(E2>B\$2,B\$2,0)



Using The IF Function) (2 of 3)

Operator	Description
=	Equal to
<>	Not equal to
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

Using The IF Function) (3 of 3)

	A	B	C
1	Input Values		
2	\$	1,000.00	
3	\$	2,000.00	
4		10%	
5		5%	
6	\$	250.00	
7			
8	IF Function	Evaluation	Result
9	=IF(A2=A3,A4,A5)	\$1,000 is equal to \$2,000: FALSE	5%
10	=IF(A2<A3,A4,A5)	\$1,000 is less than \$2,000: TRUE	10%
11	=IF(A2<>A3,"Not Equal","Equal")	\$1,000 and \$2,000 are not equal: TRUE	Not Equal
12	=IF(A2>A3,A2*A4,A2*A5)	\$1,000 is greater than \$2,000: FALSE	\$ 50.00
13	=IF(A2>A3,A2*A4,MAX(A2*A5,A6))	\$1,000 is greater than \$2,000: FALSE	\$ 250.00
14	=IF(A2*A4=A3*A5,A6,0)	\$100 (A2*A4) is equal to \$100 (A3*A5): TRUE	\$ 250.00
15			

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