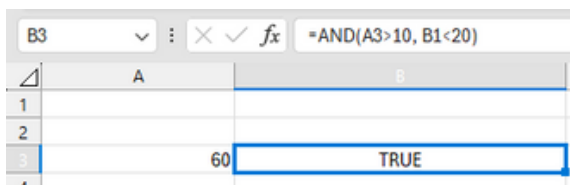


**AND:** Is used to evaluate multiple conditions. It returns TRUE if all the conditions are true, and FALSE if any of the conditions are false..

**Formula:** **=AND(A1>10, B1<20)**

- Returns TRUE if A1 is greater than 10 and B1 is less than 20, otherwise returns FALSE.



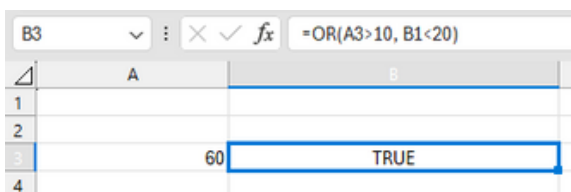
The screenshot shows an Excel spreadsheet with the formula bar displaying `=AND(A3>10, B1<20)`. The spreadsheet has two columns, A and B, and four rows, 1 through 4. Cell A3 contains the value 60, and cell B1 contains the value TRUE. The formula result, TRUE, is displayed in cell B3.

	A	B
1		
2		
3	60	TRUE
4		

**OR:** is used to test multiple conditions and returns TRUE if any of the conditions are true, and FALSE if none of the conditions are true.

**Formula:** **=OR(A1>10, B1<20)**

- Returns TRUE if either A1 is greater than 10 or B1 is less than 20.



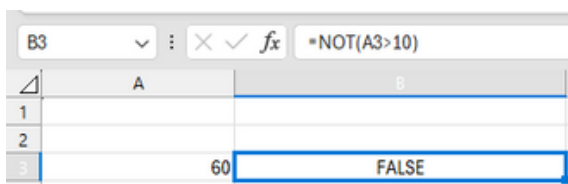
The screenshot shows an Excel spreadsheet with the formula bar displaying `=OR(A3>10, B1<20)`. The spreadsheet has two columns, A and B, and four rows, 1 through 4. Cell A3 contains the value 60, and cell B1 contains the value TRUE. The formula result, TRUE, is displayed in cell B3.

	A	B
1		
2		
3	60	TRUE
4		

**NOT:** is used to reverse a logical value. If the value is TRUE, it returns FALSE, and if the value is FALSE, it returns TRUE.

**Formula:** **=NOT(A1>10)**

- Returns FALSE if A1 is greater than 10, otherwise returns TRUE.



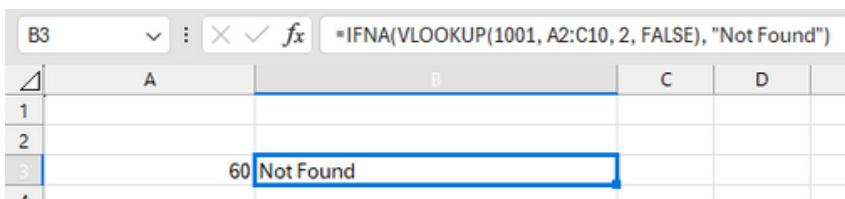
The screenshot shows an Excel spreadsheet with the formula bar displaying `=NOT(A3>10)`. The spreadsheet has columns A and B. Row 3 is highlighted, showing the value 60 in column A and the result FALSE in column B.

	A	B
1		
2		
3	60	FALSE

**IFNA:** Is used to return a custom result if a formula results in an #N/A error, and the result of the formula otherwise.

**Formula:** **=IFNA(VLOOKUP(1001, A2:C10, 2, FALSE), "Not Found")**

- Returns "Not Found" if the VLOOKUP function returns #N/A, otherwise returns the lookup result.



The screenshot shows an Excel spreadsheet with the formula bar displaying `=IFNA(VLOOKUP(1001, A2:C10, 2, FALSE), "Not Found")`. The spreadsheet has columns A, B, C, and D. Row 3 is highlighted, showing the value 60 in column A and the result "Not Found" in column B.

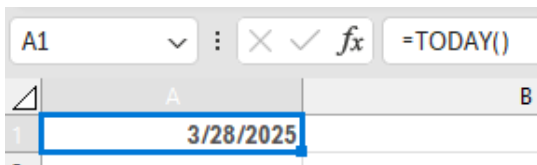
	A	B	C	D
1				
2				
3	60	Not Found		

# Date and Time Functions

**TODAY:** Returns the current date based on your system's date.

**Formula:** **=TODAY()**

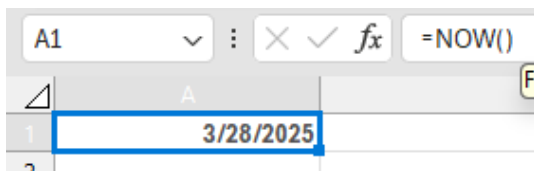
- Returns the current date, e.g., 03/19/2025.



**NOW:** Returns the current date and time based on your system's clock.

**Formula:** **=NOW()**

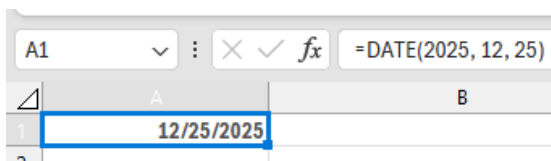
- Returns the current date and time, e.g., 03/19/2025 17:45.



**DATE:** Returns a date based on the year, month, and day you provide.

**Formula:** **=DATE(2025, 12, 25)**

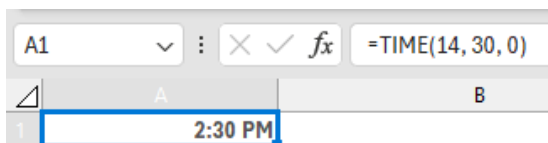
- Returns 12/25/2025.



**TIME:** Returns a time value based on the hour, minute, and second that you provide.

**Formula:** `=TIME(14, 30, 0)`

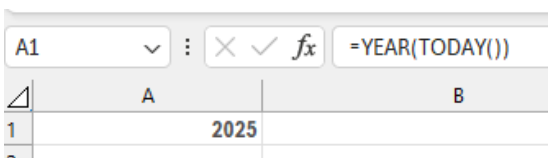
- Returns 2:30 PM.



**YEAR:** Extracts the year from a given date.

**Formula:** `=YEAR(TODAY())`

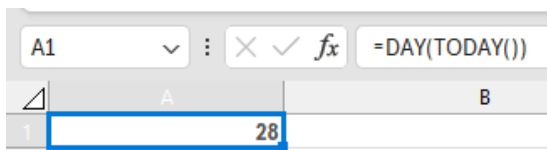
- Returns 2025.



**DAY:** Extracts the day of the month from a given date.

**Formula:** `=DAY(TODAY())`

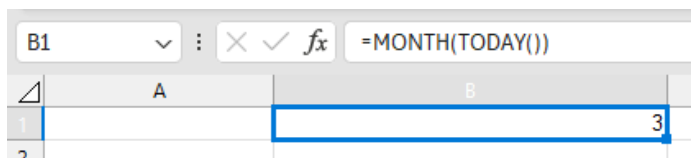
- Returns 19 if the current date is March 19.



**MONTH:** Returns the month of a given date as a number, from 1 (January) to 12 (December).

**Formula:** **=MONTH(TODAY())**

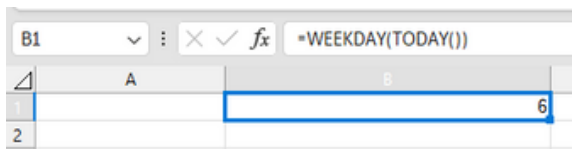
- Returns 3 if the current date is in March.



**WEEKDAY:** Returns the day of the week for a given date as a number, where you can specify which numbering system you prefer.

**Formula:** **=WEEKDAY(TODAY())**

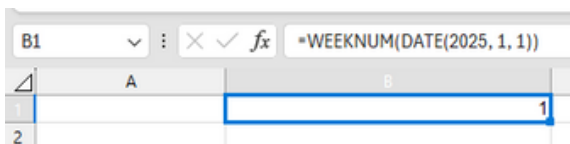
- Returns 4 if today is Wednesday.



**WEEKNUM:** Returns the week number of a given date within the year.

**Formula:** **=WEEKNUM(DATE(2025, 1, 1))**

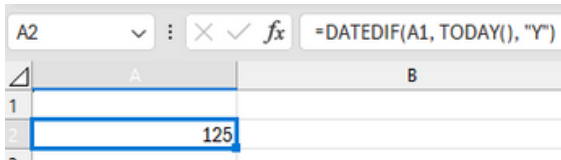
- Returns 4 if today is Wednesday.



**DATEDIF:** Calculates the difference between two dates in years, months, or days.

**Formula:** `=DATEDIF(A1, TODAY(), "Y")`

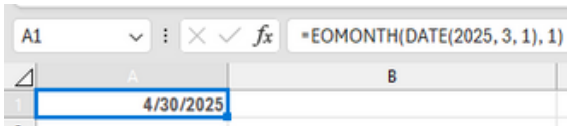
- **Output:** 25 (if the birthdate in A1 is 25 years ago).



**EOMONTH:** Returns the last day of the month that is a specified number of months before or after a given start date.

**Formula:** `=EOMONTH(DATE(2025, 3, 1), 1)`

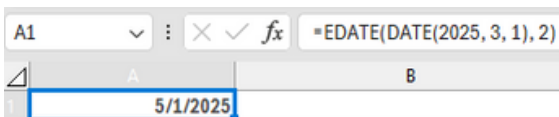
- Returns 04/30/2025.



**EDATE:** Returns the date that is a specified number of months before or after a given start date.

**Formula:** `=EDATE(DATE(2025, 3, 1), 2)`

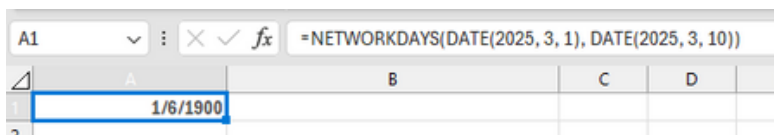
- Returns 05/01/2025.



**NETWORKDAYS:** Calculates the number of working days (weekdays) between two dates, excluding weekends (Saturday and Sunday) and any specified holidays.

**Formula:** `=NETWORKDAYS(DATE(2025, 3, 1), DATE(2025, 3, 10))`

- Returns 7 (excluding weekends).



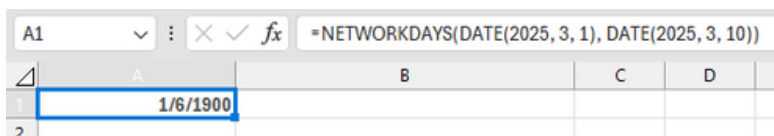
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=NETWORKDAYS(DATE(2025, 3, 1), DATE(2025, 3, 10))`. The active cell is A1, which contains the date `1/6/1900`. The spreadsheet has columns A, B, C, and D, and rows 1 and 2.

	A	B	C	D
1	1/6/1900			
2				

**NETWORKDAYS.INTL:** Calculates the number of working days between two dates, excluding weekends and optionally holidays.

**Formula:** `=NETWORKDAYS.INTL(DATE(2025, 3, 1), DATE(2025, 3, 10), 1)`

- Returns 7, considering the default weekend (Saturday and Sunday).



The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=NETWORKDAYS.INTL(DATE(2025, 3, 1), DATE(2025, 3, 10))`. The active cell is A1, which contains the date `1/6/1900`. The spreadsheet has columns A, B, C, and D, and rows 1 and 2.

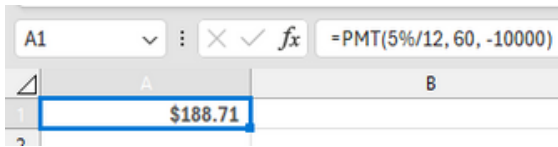
	A	B	C	D
1	1/6/1900			
2				

# Financial Functions

**PMT:** Calculates the payment for a loan or an investment based on constant payments and a constant interest rate.

**Formula:** `=PMT(5%/12, 60, -10000)`

- Returns the monthly payment for a loan of \$10,000 with a 5% annual interest rate over 60 months.

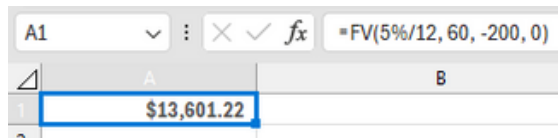


The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=PMT(5%/12, 60, -10000)`. The active cell is A1, and it contains the calculated value **\$188.71**. The spreadsheet has columns A and B, and rows 1 and 2 visible.

**FV:** Calculates the future value of an investment or loan based on constant payments, a constant interest rate, and the number of periods.

**Formula:** `=FV(5%/12, 60, -200, 0)`

- Returns the future value of monthly deposits of \$200 for 60 months at a 5% annual interest rate.

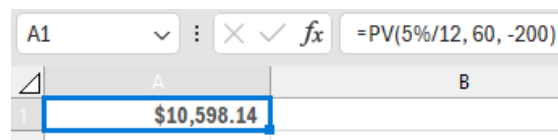


The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=FV(5%/12, 60, -200, 0)`. The active cell is A1, and it contains the calculated value **\$13,601.22**. The spreadsheet has columns A and B, and rows 1 and 2 visible.

**PV**

**Formula:** `=PV(5%/12, 60, -200)`

- Returns the present value of monthly payments of \$200 over 60 months at a 5% annual interest rate.



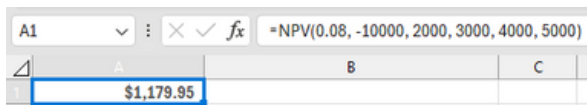
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=PV(5%/12, 60, -200)`. The active cell is A1, and it contains the calculated value **\$10,598.14**. The spreadsheet has columns A and B, and rows 1 and 2 visible.



**NPV:** Calculates the present value of a series of cash flows, discounted at a specific rate.

**Formula:** `=NPV(0.08, -10000, 2000, 3000, 4000, 5000)`

- Returns the net present value for an initial investment of \$10,000 with cash inflows over 4 years.

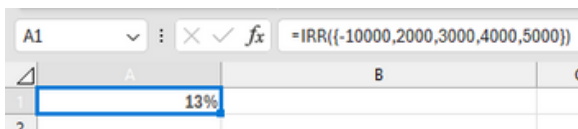


The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=NPV(0.08, -10000, 2000, 3000, 4000, 5000)`. The spreadsheet has columns A, B, and C, and rows 1 and 2. Cell A1 is selected and contains the value **\$1,179.95**.

**IRR:** Calculates the rate of return at which the net present value (NPV) of a series of cash flows equals zero.

**Formula:** `=IRR({-10000, 2000, 3000, 4000, 5000})`

- Returns the internal rate of return for the given cash flows.

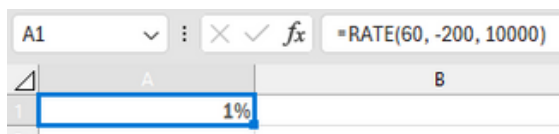


The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=IRR({-10000,2000,3000,4000,5000})`. The spreadsheet has columns A, B, and C, and rows 1 and 2. Cell A1 is selected and contains the value **13%**.

**RATE:** Calculates the interest rate for a loan or investment based on constant payments and a constant interest rate.

**Formula:** `=RATE(60, -200, 10000)`

- Returns the monthly interest rate for a loan with payments of \$200 over 60 months.

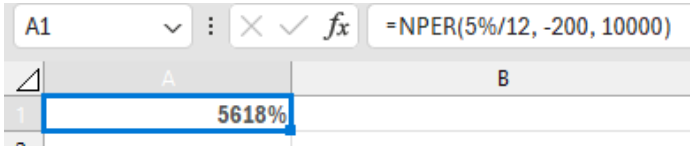


The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=RATE(60, -200, 10000)`. The spreadsheet has columns A, B, and C, and rows 1 and 2. Cell A1 is selected and contains the value **1%**.

## NPER

**Formula:** `=NPER(5%/12, -200, 10000)`

- Returns the number of months needed to pay off a loan of \$10,000 at 5% annual interest with monthly payments of \$200.

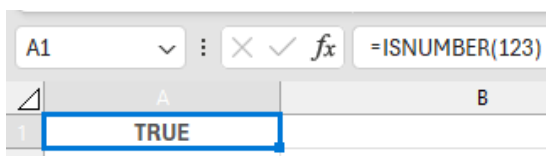


# Information Functions

**ISNUMBER:** Calculates the interest rate for a loan or investment based on constant payments and a constant interest rate.

**Formula:** **=ISNUMBER(123)**

- Returns TRUE.



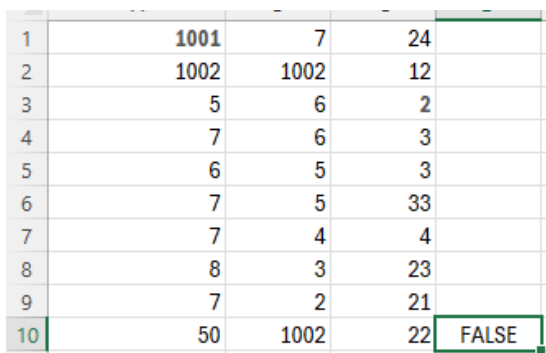
The image shows an Excel interface. The formula bar at the top displays the formula `=ISNUMBER(123)`. Below it, cell A1 is highlighted with a blue border and contains the text **TRUE**. The column headers A and B are visible above the cells.

	A	B
1	TRUE	

**ISBLANK:** Checks if a cell is empty (i.e., contains no data) and returns TRUE if the cell is empty and FALSE if it contains any data

**Formula:** **=ISBLANK(A1)**

- Returns TRUE if A1 is empty.



The image shows an Excel spreadsheet with 10 rows and 4 columns. The first column contains row numbers 1 to 10. The second column contains values 1001, 1002, 5, 7, 6, 7, 7, 8, 7, 50. The third column contains values 7, 1002, 6, 6, 5, 5, 4, 3, 2, 1002. The fourth column contains values 24, 12, 2, 3, 3, 33, 4, 23, 21, 22. The fifth column contains the result of the ISBLANK function for each row, which is FALSE for all rows shown. Cell A10 is highlighted with a green border.

1	1001	7	24	
2	1002	1002	12	
3	5	6	2	
4	7	6	3	
5	6	5	3	
6	7	5	33	
7	7	4	4	
8	8	3	23	
9	7	2	21	
10	50	1002	22	FALSE

**ISERROR:** Checks if a cell contains an error and returns TRUE if it does, otherwise FALSE.

**Formula:** `=IF(ISERROR(A1), "Error Found", "No Error")`

- Returns "Error Found" if A1 contains an error, otherwise "No Error".

D10	:	✕	✓	<i>fx</i>	=IF(ISERROR(A1), "Error Found", "No Error")		
	A	B	C	D	E	F	G
5	6	5	3				
6	7	5	33				
7	7	4	4				
8	8	3	23				
9	7	2	21				
10	50	1002	22	No Error			

**ISTEXT:** Checks if a given value is a text string and returns TRUE if it is, and FALSE if it is not.

**Formula:** `=ISTEXT("Hello")`

- Returns TRUE.

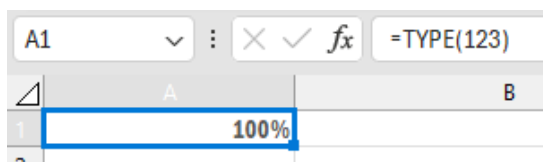
A1		⌵	:	✕	✓	<i>fx</i>	=ISTEXT("Hello")
		A					B
1	TRUE						
2							

**TYPE:** Returns a number indicating the data type of the value.

**Formula:** **=TYPE(123)**

**Return Types:**

- 1 – Number
- 2 – Text
- 4 – Logical value
- 16 – Error
- 64 – Array

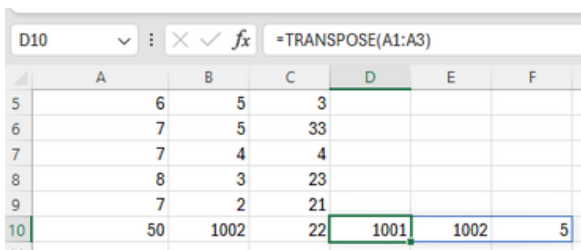


# Array Formulas

**TRANSPOSE:** Function changes the orientation of a range of cells – it converts rows to columns and columns to rows.

**Formula:** **=TRANSPOSE(A1:A3)**

- Converts a vertical range (A1 to A3) into a horizontal range.

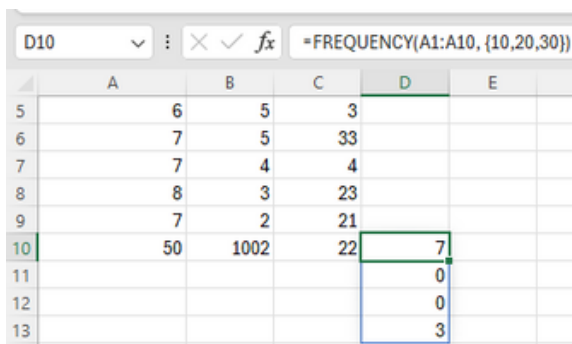


	A	B	C	D	E	F
5		6	5	3		
6		7	5	33		
7		7	4	4		
8		8	3	23		
9		7	2	21		
10		50	1002	22	1001	1002

**FREQUENCY:** Calculates how often values occur within a range of values (called "bins"), and returns a vertical array of numbers that represent the frequency of values falling into each bin.

**Formula:** **=FREQUENCY(A1:A10, {10, 20, 30})**

- Counts how many values fall into the ranges 0-10, 11-20, and 21-30.



	A	B	C	D	E
5		6	5	3	
6		7	5	33	
7		7	4	4	
8		8	3	23	
9		7	2	21	
10		50	1002	22	7
11					0
12					0
13					3

**SUMPRODUCT:** Multiplies corresponding elements in given arrays and then returns the sum of those products.

**Formula:** **=SUMPRODUCT(A1:A3, B1:B3)**

- Multiplies corresponding values in A1:A3 and B1:B3, then sums the results.

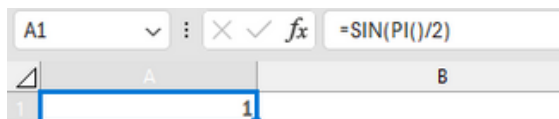
D10		✕ ✓ <i>fx</i>		=SUMPRODUCT(A1:A3, B1:B3)		
	A	B	C	D	E	
5	6	5	3			
6	7	5	33			
7	7	4	4			
8	8	3	23			
9	7	2	21			
10	50	1002	22	1011041		
11						

# Math & Trigonometry Functions

**SIN:** Returns the sine of an angle given in radians.

**Formula:** **=SIN(PI()/2)**

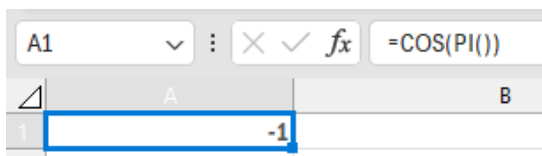
- Returns 1.



**COS:** Returns the cosine of an angle given in radians.

**Formula:** **=COS(PI())**

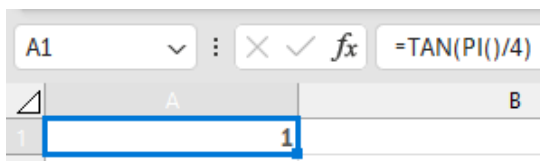
- Returns -1.



**TAN:** Returns the tangent of an angle given in radians.

**Formula:** **=TAN(PI()/4)**

- Returns 1.

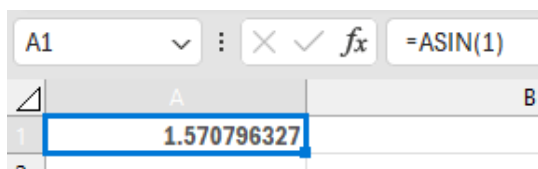




**ASIN:** Returns the arc sine of a number, in radians.

**Formula:** **=ASIN(1)**

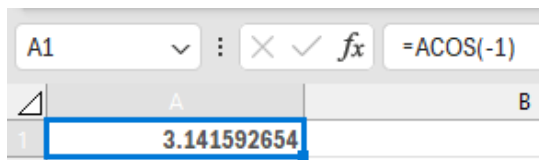
- Returns  $\text{PI}()/2$ .



**ACOS:** Returns the arc cosine (inverse of the cosine) of a number, in radians.

**Formula:** **=ACOS(-1)**

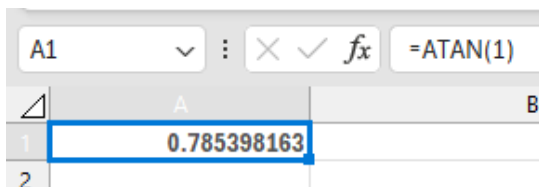
- Returns  $\text{PI}()$ .



**ATAN:** Returns the arc tangent of a number, in radians.

**Formula:** **=ATAN(1)**

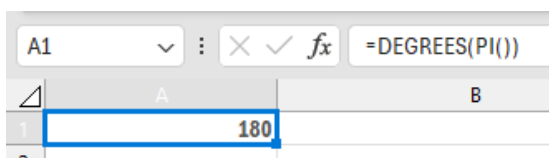
- Returns  $\text{PI}()/4$ .



**DEGREES:** Converts an angle from radians to degrees.

**Formula:** **=DEGREES(PI())**

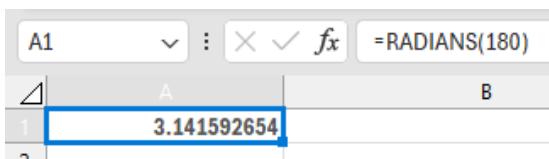
- Returns 180.



**RADIANS:** Converts an angle from degrees to radians.

**Formula:** **=RADIANS(180)**

- Returns PI()..

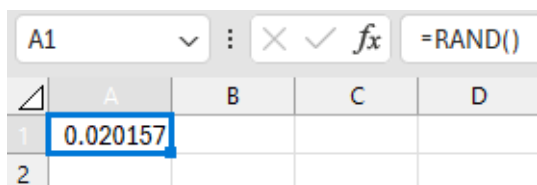


## Other Functions

**RAND:** Returns a random decimal number between 0 and 1.

**Formula:** =RAND()

- Returns "1234.57" (rounded to two decimal places).



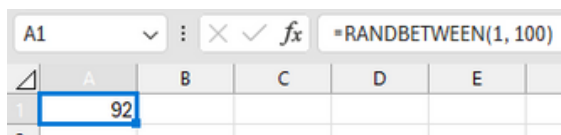
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying "=RAND()". The active cell is A1, which contains the value "0.020157". The spreadsheet grid shows columns A, B, C, and D, and rows 1 and 2.

	A	B	C	D
1	0.020157			
2				

**RANDBETWEEN:** Returns a random integer between two specified values.

**Formula:** =RANDBETWEEN(1, 100)

- Returns a random integer between 1 and 100.



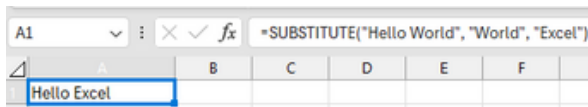
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying "=RANDBETWEEN(1, 100)". The active cell is A1, which contains the value "92". The spreadsheet grid shows columns A, B, C, D, and E, and rows 1 and 2.

	A	B	C	D	E
1	92				
2					

**SUBSTITUTE:** Replaces specific text in a string.

**Formula:** `=SUBSTITUTE("Hello World", "World", "Excel")`

- Returns a random decimal value like 0.5674.



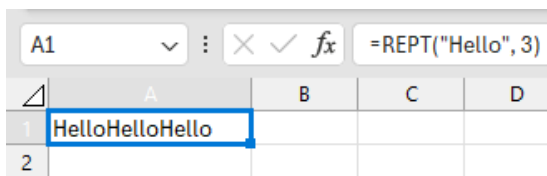
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=SUBSTITUTE("Hello World", "World", "Excel")`. In cell A1, the text "Hello Excel" is displayed, which is the result of replacing "World" with "Excel" in the original string.

	A	B	C	D	E	F
1	Hello Excel					

**REPT:** Repeats a text string a specified number of times.

**Formula:** `=REPT("Hello", 3)`

- Returns HelloHelloHello.



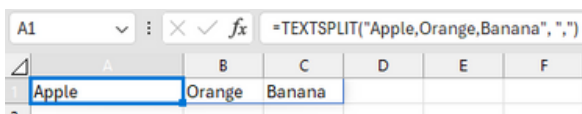
The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=REPT("Hello", 3)`. In cell A1, the text "HelloHelloHello" is displayed, which is the result of repeating the string "Hello" three times.

	A	B	C	D
1	HelloHelloHello			
2				

**TEXTSPLIT:** Splits text into multiple cells based on a specified delimiter.

**Formula:** `=TEXTSPLIT("Apple,Orange,Banana", ",", "")`

- If A1 contains `=SUM(B1:B5)`, it returns `=SUM(B1:B5)`.



The screenshot shows an Excel spreadsheet with the formula bar at the top displaying `=TEXTSPLIT("Apple,Orange,Banana", ",", "")`. In cell A1, the text "Apple" is displayed, which is the first item split from the original string using a comma as a delimiter.

	A	B	C	D	E	F
1	Apple	Orange	Banana			

# Excel Shortcuts

- Alt + F1** *Creates a chart based on the selected data.*
- Ctrl + 6** *Toggles the visibility of objects like charts and shapes in your worksheet.*
- Ctrl + F2** *Opens the Print Preview window.*
- Alt + H + H** *Opens the Fill Color dialog box to change cell color.*
- Alt + A + M** *Merge and Center selected cells.*
- Ctrl + D** *Fills the selected cells with the contents of the cell above.*
- Ctrl + C** *Copies the selected cells or data.*
- Ctrl + Enter** *Fills the selected cells with the same value or formula.*
- Alt + =** *Inserts the **SUM()** function automatically, summing a selected range of cells.*
- Ctrl + Pageup** *Moves to the previous worksheet in the workbook.*
- Ctrl + Pagedown** *Moves to the next worksheet in the workbook.*
- Alt + Q** *Opens the Quick Analysis tool to analyze your data.*