

# How do I find the intersection of two lines in Excel?

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## RECOMMENDED CITATION

stats writer (2024). *How do I find the intersection of two lines in Excel?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=152473>

Finding the intersection of two lines in Excel involves using the built-in "Intersect" function, which calculates the point where two lines intersect. This function takes in the coordinates of the two lines and returns the coordinates of the intersection point. To use this function, you must first plot the two lines on a graph in Excel. Then, you can use the function to find the intersection point, which can be useful in various applications such as solving equations, analyzing trends, and identifying common data points. The intersection point can also be visually displayed on the graph, providing a clear representation of where the two lines meet. Utilizing the "Intersect" function in Excel allows for a quick and accurate way to find the intersection of two lines and can assist in data analysis and problem-solving tasks.

## Find the Intersection of Two Lines in Excel

You can use the following formulas to find the point of intersection of two straight lines in Excel:

**Find the X-Value of Intersection:**

**$$=(\text{INTERCEPT}(y2,x2)-\text{INTERCEPT}(y1,x1))/(\text{SLOPE}(y1,x1)-\text{SLOPE}(y2,x2))$$**

This formula assumes x1 and x2 represent an array of x-values for each line and y1 and y2 represent an array of y-values for each line.

Once you find this x-value, you can then plug that value into this formula to find the y-value of intersection:

**Find the Y-Value of Intersection:**

**=SLOPE(y1,x1)\*x\_intercept+INTERCEPT(y1,x1)**

The following step-by-step example shows how to use these formulas in practice.

**Step 1: Enter the Values for Each Line**

**First, let's enter the (x, y) coordinates for two lines:**

	A	B	C	D	E	F
1	<b>Line 1</b>			<b>Line 2</b>		
2	<b>x</b>	<b>y</b>		<b>x</b>	<b>y</b>	
3		1	2		1	1
4		2	4		2	5
5		3	6		3	9
6		4	8		4	13
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**Step 2: Find the X-Value of Intersection**

**Next, type the following formula into cell H2 to find the x-value of intersection:**

**$$=(\text{INTERCEPT}(E3:E6,D3:D6)-\text{INTERCEPT}(B3:B6,A3:A6))/(\text{SLOPE}(B3:B6,A3:A6)-\text{SLOPE}(E3:E6,D3:D6))$$**

The following screenshot shows how to use this formula in practice:

	A	B	C	D	E	F	G	H
1	<b>Line 1</b>			<b>Line 2</b>			<b>Intersection</b>	
2	<b>x</b>	<b>y</b>		<b>x</b>	<b>y</b>		<b>x</b>	1.5
3		1	2		1	1		
4		2	4		2	5		
5		3	6		3	9		
6		4	8		4	13		
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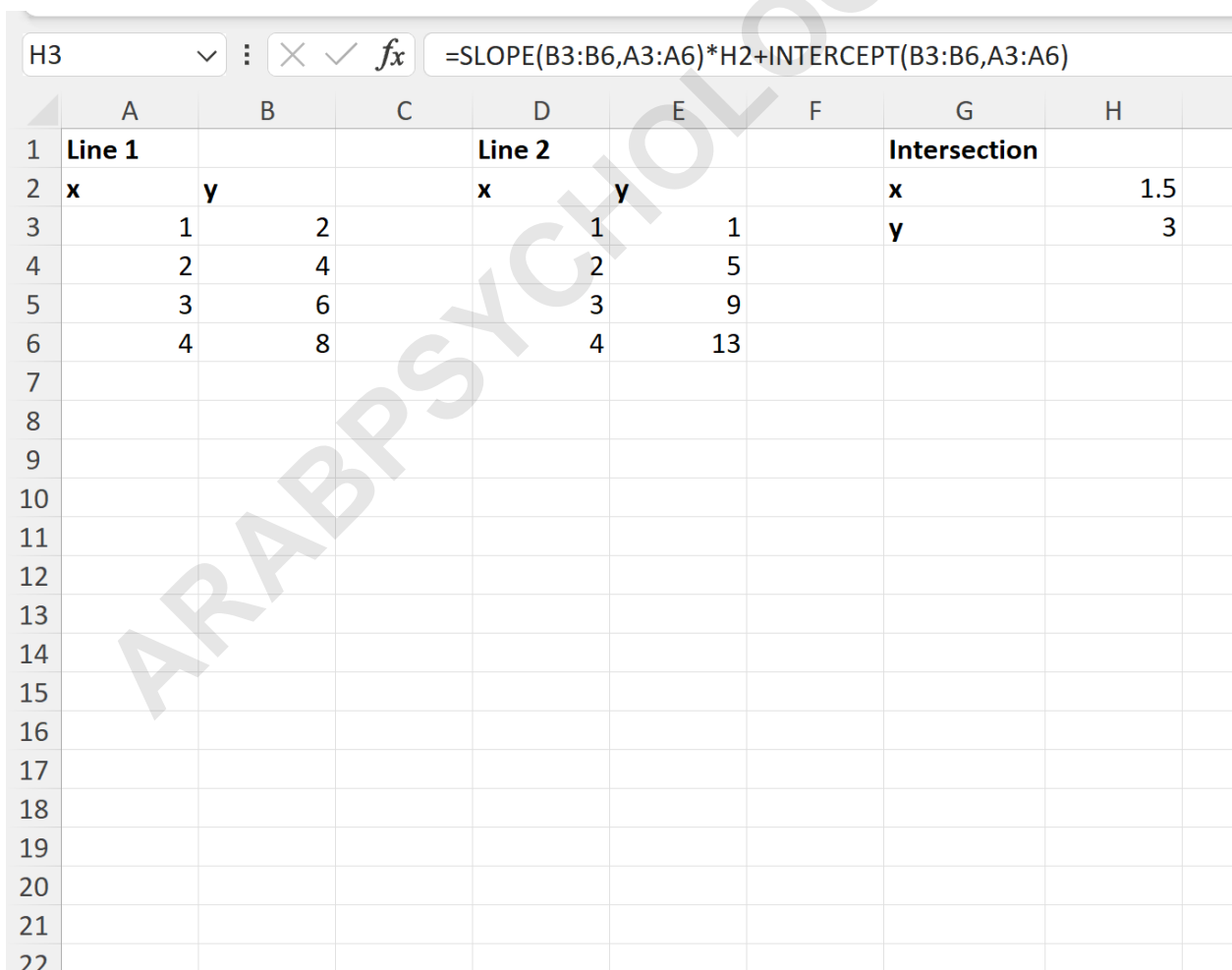
The x-value of intersection turns out to be 1.5.

### Step 3: Find the Y-Value of Intersection

Next, type the following formula into cell H3 to find the y-value of intersection:

**=SLOPE(B3:B6,A3:A6)\*H2+INTERCEPT(B3:B6,A3:A6)**

The following screenshot shows how to use this formula in practice:



The screenshot shows an Excel spreadsheet with the following data:

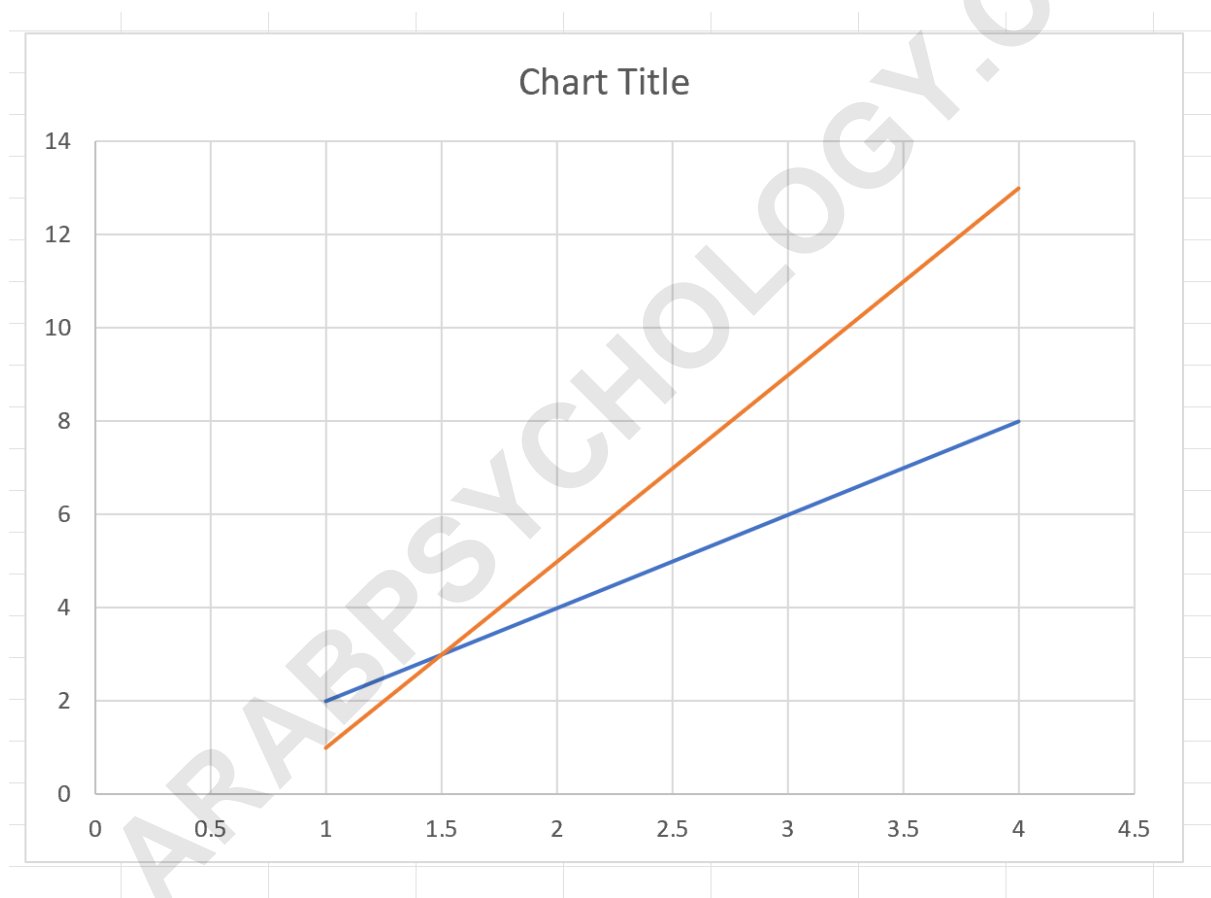
	A	B	C	D	E	F	G	H
1	<b>Line 1</b>			<b>Line 2</b>			<b>Intersection</b>	
2	<b>x</b>	<b>y</b>		<b>x</b>	<b>y</b>		<b>x</b>	1.5
3		1	2		1	1	<b>y</b>	3
4		2	4		2	5		
5		3	6		3	9		
6		4	8		4	13		
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The formula bar shows the formula: `=SLOPE(B3:B6,A3:A6)*H2+INTERCEPT(B3:B6,A3:A6)`

**The y-value of intersection turns out to be 3.**

#### **Step 4: Visualize the Intersection Point**

**If we plot each line on the same plot in Excel, we can see that the intersection point is indeed at the (x, y) coordinates of (1.5, 3):**



**This represents the point on the plot where the two lines intersect.**

**The following tutorials explain how to perform other**

## common tasks in Excel:

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