# Dixon's Q-test

A statistically valid method for eliminating an outlier

## Sample of the Excel Spreadsheet with 15 data points

					Q_test_w	orksheet - E	cel (Product A	Activation Failed)							F	-		7
yout	Formulas	Data	Review	View	♀ Tell m	e what you v	vant to do									Si	gn in	Я s
Font	11 • A A • 👌 • <u>A</u> •		■ ※ · ■ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	nment	Vrap Text Nerge & Cent	Gen ter ∓ \$	eral • % • 5	0 .00 Conditi Formatt	onal Format a ing • Table • Styles	s Cell Styles	€ Insert	Delete F	ormat	∑ AutoSu ↓ Fill →	Sort & Filter	Find Find	) 81 t *	
1	Measurement	ts	Ou	tlier	Gap	Range	Q	Confidence	Critical Valu	ue Ou	utlier Y/N				Sort & Filt	er		_
2 3 4	1.369311 0.828084 0.725857		1.	369311	0.541227	22 1.361	97 0.397385	5 95%	0.	.466 N			Samp	le Size 3	Organize y analyze. You can so	our data	a so it's e elected d	:asier data f
5 6 7	0.674847 0.647857 0.540258					Sort	the	data f	rom					4 5 6	smallest to smallest, o	largest, r filter o <b>U.02</b> 5	, largest out specif	to fic va
8	0.467764					Hig	nest t	o low	est					7		0.568		_
10	0.245519													9		0.493		-
11	0.22575					Usir	ng Sol	rt & Fi	lter					10		0.466		
12	0.11529					0011	600											
13	0.112528																	
14	0.063716																	
15	0.007341																	
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		-+
26																		
	<	Sheet1	(+)							: [	4				-			1
			0															-

#### Change the number of data points in accord with data

					Q_test_work	csheet - Exce	el (Product A	ctivation Failed)					<b>•</b> •	-	ð
out	Formulas	Data	Review	View	🔉 Tell me w	/hat you wa	nt to do						5	ign in	R
=	MAX(\$A\$2:\$/	A\$15)-MIN	<b>\(</b> \$A\$2:\$A\$	15)											
	А	В	С	D	E	F	G	Н	I.	J	к	L	М	N	1
1	Measureme	nts	0	ıtlier	Gap	Range	Q	Confidence	Critical Value	Outlier Y/N	J				
2	1.369311		:	.369311	0.54122722	=MAX(\$A	0.397385	95%	0.466	N					
3	0.828084						Ī					Sample Size	95% Conf.		
4	0.725857											3	0.97	'	
5	0.674847											4	0.829	)	
6	0.647857			_								5	0.71		
7	0.540258			1		) _						6	0.625	i	
8	0.467764			In		z cha	inge					7	0.568		
9	0.420341				A \ /	1	- -					8	0.526	i	
10	0.245519			I IVI <i>I</i>	AX and	a IVII	IN					9	0.493		
11	0.22575			-			_					10	0.466	i	
12	0.11529			SO	that S	SAS1	5								
13	0.112528						-								
14	0.063716			CO	rrespo	onds	to th	ne I							
15	0.007341														
16				lmι	umber	r of r	point	s 📃							
18						-									
19															
20															
21															
22															
23															
24															
25															
26															
~~		Sheet1	æ												
		aneeri	Ð							4					_

Ħ

Ξ

四

## Change the critical value in accord with data

					Q_test_work	sheet - Exce	l (Product A	ctivation Failed)					F	-	8
out	Formulas	Data	Review	View	♀ Tell me w	/hat you wan	it to do							Sign in	<b>A</b>
=	MAX(\$A\$2:	\$A\$15)-MIN	√(\$A\$2:\$A	\$15)											
	Α	в	с	D	E	F	G	н	I	J	к	L	м	1	N
1	Measurem	ents		Outlier	Gap	Range	Q	Confidence	Critical Value	Outlier Y/N					
2	1.369311			1.369311	0.54122722	=MAX(\$A\$	0.397385	95%	0.466	i N					
3	0.828084											Sample Size	95% Conf.		
4	0.725857												3 0	97	
5	0.674847												4 0.8	29	
6	0.647857												5 0	71	
7	0.540258												6 0.6	25	
8	0.467764												7 0.5	68	
9	0.420341												8 0.5	26	
10	0.245519												9 0.4	93	
11	0.22575								_			1	0 0.4	66	
12	0.11529			l In c	ell 12 (	chan	ge t	he valı	le in a	ccord					
13	0.112528				•	00	00 0								
14	0.003/10			l witl	n the '	table	∙. Lik	e the t	t-test v	alue					
16	0.007541														
17				the	critic	al val	lue r	eache	s a lim	iting					
18				circ				caene	5 a mm	69					
19				lvalı	ie as t	he n	umł	per of	noints	increa	ases				
20				vare					pomes		4505	′•			
21				l To ł	ne safé	o I re	com	mend	0 4 6 6	for ar	าง				
22							COTT		0.100		' Y				
23				dat	a set v	with	grea	ter tha	an 10 r	noints					
24						/villi	bica				•				
25															
26															
~~	< >	Sheet1	(Ŧ)							: .					

Ħ

P

E

## The result is given in J2

					Q_test_work	csheet - Exce	l (Product A	ctivation Failed)					<b>•</b>	-	8
out	Formulas	Data	Review	View	♀ Tell me v	vhat you war	nt to do						5	ign in	ጾ
=	MAX(\$A\$2:\$	A\$15)-MIN	<b>V(</b> \$A\$2:\$A	\$15)											
	А	в	с	D	E	F	G	н	1	J	к	L	м	N	J
1	Measureme	ents		Outlier	Gap	Range	Q	Confidence	Critical Value	Outlier Y/	'N				
2	1.369311			1.369311	0.54122722	=MAX(\$A\$	0.397385	95%	0.466	N					
3	0.828084											Sample Size	95% Conf.		
4	0.725857					T			T			3	0.97		
5	0.674847											4	0.829		
6	0.647857											5	0.71		
7	0.540258											6	0.625		
8	0.467764											7	0.568		
9	0.420341											8	0.526		
10	0.245519											9	0.493		
11	0.22575			_				_				10	0.466		
12	0.11529			∣ Aft∉	er ma	king	the d	change	es in F2	) and	2				
13	0.112528			/ \  C		0				- 4110					
14	0.063/16			The	• resul	t is ø	riven	in 12	Obvio	ıslv					
15	0.007341						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	111 52.		asry,					
17				Nm	neans	that	the	noint	is not a	an oi	ıtliei	r			
18					icuns	that	the	point							
19				Y m	leans	that	the	noint i	s an oi	ıtlier	•				
20					icuns	that	the	point	5 un oc		•				
21				Δnr	hlv the	<u>-1</u> م	oct t	o a da	ta set d	nlv	once	<u>د</u>			
22					Jiy circ			0 a aa		Jilly	Unco	-•			
23				Fitk	or the	oro id	ond	a outli	or or 70	aro					
24								Juli							
25															
26															
		Chaot1													
	N P	Sneeti	÷							· •					

-----+

<sup>▦ ▣</sup> 罒 ------