Section 2: Notation and proof

Solutions to Exercise level 1

Q. no.	A nec. or suff. for B?	Statement A	$\Rightarrow$, $\Leftarrow$, $\Leftrightarrow$, 'none'?	Statement B	B nec. or suff. for A?
1	S	$x^2 = 9$	$\Rightarrow$	$x < 6$	N
2	N, S	This month has 29 days	$\Leftrightarrow$	It is February in a leap year	N, S
3	N, S	$x = +1$ or $x = -1$	$\Leftrightarrow$	$(x+1)(x-1) = 0$	N, S
4	N	$\sin x = 1$	$\Leftarrow$	$x = 90°$	S
5	S	A polygon is a square	$\Rightarrow$	A polygon has 4 sides	N
6	N	$(x+1)(y-1) = 0$	$\Leftarrow$	$x = -1$ and $y = +1$	S
7	N, S	Three straight lines in 2d meet in exactly 2 points	$\Leftrightarrow$	Exactly 2 of 3 straight lines in 2d are parallel	N, S
8	N	$x^2 = 9$	$\Leftarrow$	$x = 3$	S
9	N, S	n^2 is a multiple of 5	$\Leftrightarrow$	n is a multiple of 5	N, S
10	neither	k is divisible by 3	'none'	$k + 1$ is even	neither
11	N	The discriminant of a quadratic equation is non-negative	$\Leftarrow$	A quadratic equation has 2 unequal real roots	S
12	neither	$a > b$	'none'	$\frac{1}{a} < \frac{1}{b}$	neither

