



Mind Your Ps and Qs

Here are 16 propositions involving a real number x .

By choosing p and q from this list, how many correct statements of the form $p \Rightarrow q$ or $p \Leftrightarrow q$ can you make?

To do this, you need to be really sure what the two symbols \Rightarrow and \Leftrightarrow mean.

$p \Rightarrow q$ essentially means that IF p is True THEN q is true.

$p \Leftrightarrow q$ means that p is true if and only if q is true.

This means that $p \Rightarrow q$ **and** $q \Rightarrow p$.

Can you arrange these eight statements into two statements of the form $p \Rightarrow q$ and two statements of the form $p \Leftrightarrow q$?

$x > 4$	$x = -2$	$x > 1$	$x^2 + 4x + 4 = 0$
$x^3 > 1$	$x^2 + x - 2 = 0$	$x > 2$	$x = 1$