

p

q

If 12 divides 36 evenly, then 3 divides 72 evenly.

If $3 < 72$, then 3 divides 72 evenly.

If 12 divides 36 evenly, then $72 < 3$.

If $72 < 3$, then 3 divides 72 evenly.

If $72 < 3$, then 12 divides 3 evenly.

T	S	R	Q	P
K	L	M	N	O
J	I	H	G	F
E	D	C	B	A

1. Bob passed through *P*.
2. Bob passed through *N*.
3. Bob passed through *M*.
4. If Bob passed through *O*, then Bob passed through *F*.
5. If Bob passed through *K*, then Bob passed through *L*.
6. If Bob passed through *L*, then Bob passed through *K*.

“If Fred was at the dock at midnight, then he’s the murderer.”

“If it’s raining at home and the windows are still open, then water is coming in.”

“If I were John and John were me, then he’d be six and I’d be three.” — A. A. Milne

“If the dryer is finished, then unload it.”

“If you finish your spinach, then I will give you some cake.”

“If it rains tomorrow, the zucchini will come up.”

An even degree is a **necessary condition** for a polynomial to have no real roots .

means

If a polynomial function has no real roots, then it has an even degree.

A positive global minimum is a **sufficient condition** for a polynomial to have no real roots

means

If a polynomial function has a positive global minimum, then it has no real roots.

Values all of the same sign is a **necessary** and **sufficient** condition for a polynomial to have no real roots.

means

A polynomial function has values all of the same sign if and only if the function has no real roots.