①

If $a < 0$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have real roots.

②

If $b^2 - 4ac = 0$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have one repeated real root.

③

If $ax^2 + bx + c = 0$ has no real roots, then $ax^2 + bx - c = 0$
MUST / MAY / CAN'T have two distinct real roots.

④

If $\frac{b^2}{a} < 4c$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have two distinct real roots.

⑤

If $b = 0$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have one repeated real root.

⑥

The equation $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have three real roots.

https://undergroundmathematics.org/quadratics/discriminating
Last updated 08-Jul-16

⑦

If $c = 0$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have real roots.

⑧

The equation $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have the same number of real roots as
$ax^2 - bx + c = 0$.

⑨

If $ax^2 + bx + c = 0$ has two distinct real roots, then we
MUST / MAY / CAN'T have $ac < \frac{b^2}{4}$.

⑩

If $c > 0$, then $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have two distinct real roots.

⑪

The equation $ax^2 + bx + c = 0$
MUST / MAY / CAN'T have the same number of real roots as
$cx^2 + bx + a = 0$.

⑫

If $ax^2 + bx + c = 0$ has no real roots, then $-ax^2 - bx - c = 0$
MUST / MAY / CAN'T have two distinct real roots.