The method: The discriminant

$b^2 - 4ac$ more than 0: two real roots. Equal to 0: one real root. Less than 0: two complex roots.

$-2x^2 - 8x - 8 = 0$ $b^2 - 4ac$: 0, one real root

$(-8)^2 - 4(-2)(-8) = 0$ $b^2 - 4ac$

0 is equal to 0: one real root

$-3x^2 + 7 = 0$ $b^2 - 4ac$: 84, two real roots

$0^2 - 4(-3)(7) = 84$ $b^2 - 4ac$

84 is more than 0: two real roots

$2x^2 - 4x + 7 = 0$ $b^2 - 4ac$: −40, two complex roots

$(-4)^2 - 4(2)(7) = -40$ $b^2 - 4ac$

−40 is less than 0: two complex roots

Problems 1 and 2 worked out · Version 0A

$4x^2 + 4x + 1 = 0$ $b^2 - 4ac$: 0, one real root

$4^2 - 4(4)(1) = 0$ $b^2 - 4ac$

0 is equal to 0: one real root

$-3x^2 + 2x - 2 = 0$ $b^2 - 4ac$: −20, two complex roots

$2^2 - 4(-3)(-2) = -20$ $b^2 - 4ac$

−20 is less than 0: two complex roots

The discriminant · Version 0A

1) 0, one real root 2) −20, two complex roots
3) 0, one real root 4) 0, one real root
5) 0, one real root 6) 49, two real roots
7) 49, two real roots 8) −12, two complex roots
9) 0, one real root 10) 100, two real roots
11) 49, two real roots 12) 0, one real root
13) 0, one real root 14) −24, two complex roots
15) 53, two real roots 16) −79, two complex roots
17) −15, two complex roots
18) −47, two complex roots