

INDEX CARD #3 (BACK & FRONT)

QUADRATICS

FACTOR: SIMPLIFY (BREAK DOWN)

1. LOOK FOR A GCF
2. USE THE ABC METHOD IF THE LARGEST EXPONENT IS A 2

DO NOT SET = 0

SOLVE: REPEAT ABOVE BUT AT THE END SET = 0 AND FIND X

IF YOU CAN NOT FACTOR.....

USE THE QUADRATIC FORMULA: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

MAKE SURE EVERYTHING IS ON ONE SIDE = 0

OR USE COMPLETING THE SQUARE:

1. VARIABLES ON ONE SIDE NUMBERS ON THE OTHER
2. DIVIDE BY THE A TERM IF IT IS NOT 1
3. FIND THE B TERM
4. FIND $\frac{B}{2}$
5. SQUARE IT $(\frac{B}{2})^2$
6. ADD IT TO BOTH SIDES
7. NOW REWRITE THE LEFT $(x + \frac{B}{2})^2$
8. SOLVE BY TAKING THE SQUARE ROOT OF EACH SIDE

TO FIND THE TYPE OF ROOTS:

USE THE DISCRIMINANT $b^2 - 4ac$

IF... DISCRIMINANT IS NEGATIVE — 2 UNEQUAL IMAGINARY ROOTS

IF... DISCRIMINANT IS ZERO — 2 EQUAL REAL RATIONAL ROOTS

IF... DISCRIMINANT IS POSITIVE (PERFECT SQUARE)

— 2 UNEQUAL REAL RATIONAL ROOTS

IF... DISCRIMINANT IS POSITIVE (NOT A PERFECT SQUARE)

— 2 UNEQUAL REAL IRRATIONAL ROOTS

COMPLEX NUMBERS: $A + Bi$ FORM

$$i = \sqrt{-1} \quad i^2 = -1$$