Solving Formulas for a Variable

1. Get rid of parenthesis
2. Get rid of fractions
3. Get everything with the variable you are solving for on one side, everything else on other side
4. If the variable you are solving for is in 2 or more terms, factor it out
5. Divide both sides by what is in front of / back of the variable you are solving for

① $\frac{X-Y}{P} = \frac{Z}{N}$ for P

$PN\left(\frac{X-Y}{P}\right) = PN\left(\frac{Z}{N}\right)$

$NX - NY = PZ$

$\frac{NX-NY}{Z} = \frac{PZ}{Z}$

$\frac{NX-NY}{Z} = P$

② $A = \frac{B}{C-D}$ for D

$A(C-D) = (C-D)\left(\frac{B}{C-D}\right)$

$AC - AD = B$

$AC - B = AD$

$\frac{AC-B}{A} = \frac{AD}{A}$

$\frac{AC-B}{A} = D$

③ $A = \frac{2B-5C}{D-E}$ for E

$A(D-E) = (D-E)\left(\frac{2B-5C}{D-E}\right)$

$AD - AE = 2B - 5C$

$AD - 2B + 5C = AE$

$\frac{AD-2B+5C}{A} = \frac{AE}{A}$

$\frac{AD-2B+5C}{A} = E$

④ $A = \frac{BCD-5}{E+F^2G^2}$ for E

$A(E+F^2G^2) = (E+F^2G^2)\left(\frac{BCD-5}{E+F^2G^2}\right)$

$AE + AF^2G^2 = BCD - 5$

$AE = BCD - 5 - AF^2G^2$

$\frac{AE}{A} = \frac{BCD-5-AF^2G^2}{A}$

$E = \frac{BCD-5-AF^2G^2}{A}$

⑤ $A = \frac{7BD}{B+C}$ for B

$A(B+C) = (B+C)\left(\frac{7BD}{B+C}\right)$

$AB + AC = 7BD$

$AC = 7BD - AB$

$AC = B(7D - A)$

$\frac{AC}{7D-A} = \frac{B(7D-A)}{7D-A}$

$\frac{AC}{7D-A} = B$