

SOLVING FORMULAS FOR A VARIABLE

$$3x-1=5 \quad E=mc^2$$

NOTE: AT ANY STEP COMBINE LIKE TERMS AND COMBINE NUMBERS

#1 $a = bcd$ for c

$$\frac{a}{bd} = \frac{bcd}{bd}$$

$$\frac{a}{bd} = c$$

1. GET RID OF PARENTHESES
2. GET RID OF FRACTIONS
3. GET EVERYTHING WITH THE VARIABLE WE 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) FROM IT OUT
5. DIVIDE BOTH SIDES BY WHAT IS IN FRONT OF / BEHIND THE VARIABLE WE ARE SOLVING FOR

#2 $a = bx - c + d$ for b

$$a + c - d = bx$$

$$\frac{a+c-d}{x} = \frac{bx}{x}$$

$$\frac{a+c-d}{x} = b$$

#3 $A = \frac{BCE}{D}$ for D

$$AD = \cancel{D} \left(\frac{BCE}{\cancel{D}} \right)$$

$$AD = BCE$$

$$\frac{AD}{A} = \frac{BCE}{A}$$

$$D = \frac{BCE}{A}$$

#4 $A - AB = D - E$ for A

$$A(1-B) = D - E$$

$$\frac{A(1-B)}{1-B} = \frac{D-E}{1-B}$$

$$A = \frac{D-E}{1-B}$$

#5 $D = \frac{1}{3}C(A+B)$ for B

$$D = \frac{1}{3}AC + \frac{1}{3}BC$$

$$3D = 3\left(\frac{1}{3}AC\right) + 3\left(\frac{1}{3}BC\right)$$

$$3D = AC + BC$$

$$3D - AC = BC$$

$$\frac{3D-AC}{C} = \frac{BC}{C}$$

$$B = \frac{3D-AC}{C}$$

$$= \frac{3D}{C} - \frac{AC}{C}$$

$$= \frac{3D}{C} - A$$

#6 $2x - 3y = 6$ for y

$$2x - 6 = 3y$$

$$\frac{2}{3}x - \frac{6}{3} = \frac{3}{3}y$$

$$\frac{2}{3}x - 2 = y$$

#7 $\frac{5}{4}x - \frac{1}{3}y = -2$

$$\frac{3}{10} \left(\frac{5}{4}x \right) - \frac{4}{10} \left(\frac{1}{3}y \right) = 10(-2)$$

$$15x - 4y = -24$$

$$15x + 24 = 4y$$

$$\frac{15}{4}x + \frac{24}{4} = \frac{4}{4}y$$

$$\frac{15}{4}x + 6 = y$$