Math 9 – Unit 3: Solving Equations

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Lesson #3: Solving with Brackets

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Learning Goal: We are learning to solve equations that contain brackets.

The next layer to solving equations is to have brackets in the equations. With brackets, you first need to expand (using the Distributive Property), simplify, then use the skills from the last two lessons to solve. Here we go!!

a) $2(x-3)=2$

$2x-6=2$

$+6 \quad +6$

$\frac{2x}{2}=\frac{8}{2}$

$x=4$

b) $3(y+2)=-9$

$3y+6=-9$

$-6 \quad -6$

$\frac{3y}{3}=\frac{-15}{3}$

$y=-5$

c) $2(3p+4)=14$

$6p+8=14$

$-8 \quad -8$

$\frac{6p}{6}=\frac{6}{6}$

$p=1$

d) $-24=4(h+3)$

$-24=4h+12$

$-12 \quad -12$

$\frac{-36}{4}=\frac{4h}{4}$

$-9=h$

e) $3(m+1)+10=8-2m$

$3m+3+10=8-2m$

$3m+13=8-2m$

$+2m \quad -13 \quad -13 \quad +2m$

$\frac{5m}{5}=\frac{-5}{5}$

$m=-1$

f) $8-3x=4(x-3)+6$

$8-3x=4x-12+6$

$8-3x=4x-6$

$+6 \quad +3x \quad +3x \quad +6$

$\frac{14}{7}=\frac{7x}{7}$

$2=x$

g) $5(2x-3)=2(x-2)+5$

multiply multiply

$10x-15=2x-4+5$

$10x+15=2x+1$

$-2x \quad +15 \quad -2x \quad +15$

$\frac{8x}{8}=\frac{16}{8}$

$x=2$

h) $4(d+7)=-44+2(d+6)$

$4d+28=-44+2d+12$

$4d+28=2d-32$

$-2d \quad -28 \quad -2d \quad -28$

$\frac{2d}{2}=\frac{-60}{2}$

$d=-30$

i) $4(n-2)-1(n+3)=n-1$

$4n-8-n-3=n-1$

$3n-11=n-1$

$-n \quad +11 \quad -n \quad +11$

$\frac{2n}{2}=\frac{10}{2}$

$n=5$

j) $4(k-7)-2(k+3)=-15k$

$4k-28-2k-6=-15k$

$2k-34=-15k$

$-2k$

$\frac{-34}{-17}=\frac{-17k}{-17}$

$2=k$

k) $3(2x+1)-(x-2)=2(x+4)$

$6x+3-x+2=2x+8$

$5x+5=2x+8$

$-2x \quad -5 \quad -2x \quad -5$

$\frac{3x}{3}=\frac{3}{3}$

$x=1$

Success Criteria:

- I can use the distributive property to eliminate brackets, then solve the equation normally