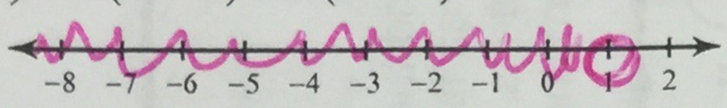
Algebra 1 Name_____ ID: 1

Solving Multi-Step Inequalities

Date_____ Period____

Solve each inequality and graph its solution.

1) $-2(x+8)-5(x-2)>7x-8x$



$-2x-16-5x+10>7x-8x$

$-7x-6>-1x$

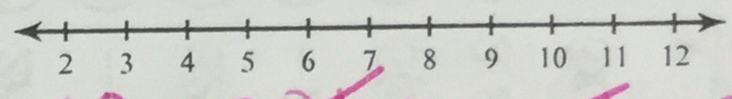
$+7x \quad +7x$

$-6>6x$

$-1>x$

$x<1$

2) $12+20k>4(5k-5)$

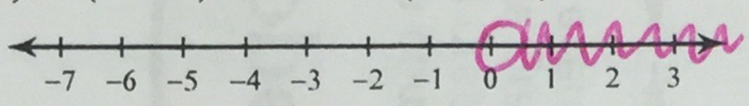


$12+20k>20k-20$

$12>-20$ ✓

IS

3) $6(1-k)+5k<6(1+8k)$



$6-6k+5k<6+48k$

$6-k<6+48k$

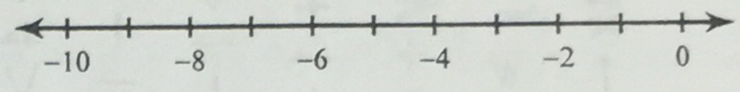
$-6+k \quad -6+1k$

$0<49k$

$0<k$

$k>0$

4) $-4(b-1)-2b<-2(3b+7)$



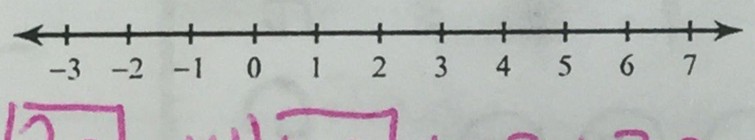
$-4b+4-2b<-6b-14$

$-6b+4<-6b-14$

$4<-14$ ×

NS

5) $2(p-7)+p<-2+3p$



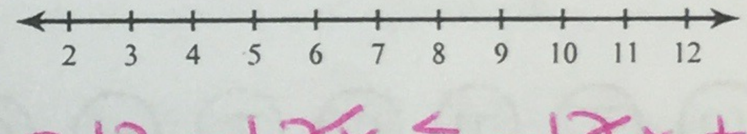
$2p-14+p<-2+3p$

$3p-14<-2+3p$

$-14<-2$ ✓

IS

6) $-2(6+6x)\le-12x+27$

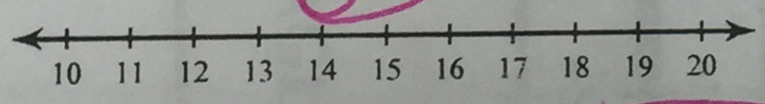


$-12-12x\le-12x+27$

$-12\le27$ ✓

IS

7) $n+6n\ge-5(n-8)+4(3n+6)$



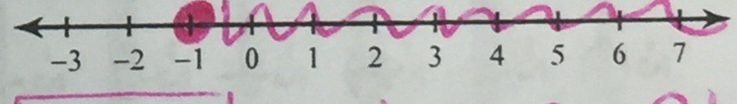
$7n\ge-5n+40+12n+24$

$7n\ge7n+64$

$0\ge64$ ×

NS

8) $6+6(-3-5k)\le3(3-3k)$



$6-18-30k\le9-9k$

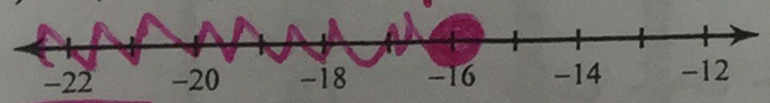
$-12-30k\le9-9k$

$+12+9k \quad +12+9k$

$-21k\le21$

$k\ge-1$

9) $3(a+4)+6a\le-(-7a+4)+a$



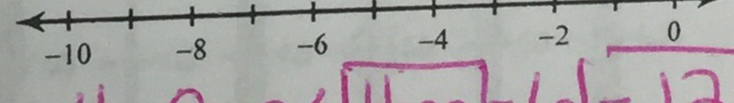
$3a+12+6a\le7a-4+a$

$9a+12\le8a-4$

$-8a \quad -12 \quad -8a \quad -12$

$a\le-16$

10) $4-8m<4m-6(1+2m)$



$4-8m<4m-6-12m$

$4-8m<-8m-6$

$4<-6$ ×

NS

① $x > -4$ $x \leq -1$ (I)

② $x+5>4$ $x-2<2$ (O)

$x > -1$ $x < 4$

③ $y \leq -2$ $y > 3$ (C)

④ $-3t > 12$ $5t \geq 10$ (E)

$t < -4$ $t \geq 2$

⑤ $2n+5>1$ $3n+4>7$

$2n > -4$ $3n > 3$ (N)

$n > -2$ & $\boxed{n > 1}$

everything above

⑥ $-4u+9>1$ $7u-13 \leq -6$ (G)

$-4u > -8$ $7u \leq 7$

$u < 2$ & $\boxed{u \leq 1}$

everything less

⑦ $32 \leq 3x+20$ or $17 > 1-8x$ (M)

$12 \leq 3x$ $16 > -8x$

$4 \leq x$ $x \geq 4$ or $-2 < x$ $\boxed{x > -2}$

everything greater

⑧ $-2k+8<14$ or $3k+1<1$ (H)

$-2k < 6$ $3k < 0$

$k > -3$ or $k < 0$

⑨ $5(w+4) \geq 5$ & $2(w+4) < 12$ (T)

$5w+20 \geq 5$ $2w+8<12$

$5w \geq -15$ $2w < 4$

$w \geq -3$ & $w < 2$

⑩ $3(6-y) \leq 6$ & $6-y \geq 8$ (S)

$18-3y \leq 6$ $-6 \quad -6$

$-3y \leq -12$ $-y \geq 2$

$y \geq 4$ & $y \leq -2$

Nothing in common

⑪ $3x < 2x-3$ or $7x > 4x-9$

(P) $x < -3$ $3x > -9$

$x > -3$

⑫ $\frac{x}{2} \leq -2$ or $\frac{-x}{2} \geq 0$

(A) $x \leq -4$ or $-x \geq 0$

$\boxed{x \leq 0}$

everything less

HE GOT A PANE IN HIS STOMACH