3 - Absolute Value

Solve the Equation

1. $|-2b| = 6$

$-2b=6$ or $-2b=-6$

$b=-3$ or $b=3$

2. $|-6x| - 10 = -64$

$|-6x| = -54$

$-6x=-54$ or $-6x=54$

wait... abs val ≠ neg. number, ever.

No solution

3. $|-3+6x| + 10 = 31$

$|-3+6x| = 21$

$-3+6x=21$ or $-3+6x=-21$

$x=4$ or $x=-3$

4. $6 - 3|4r - 9| = 3$

$-3|4r-9| = -3$

$|4r-9| = 1$

$4r-9=1$ or $4r-9=-1$

$r=\frac{10}{4}=\frac{5}{2}$ or $r=2$

Solve each Inequality

5. $|7x| \geq 56$

$7x \geq 56$ or $7x \leq -56$

$x \geq 8$ or $x \leq -8$

6. $-2|4x - 3| \geq 6$

$|4x-3| \leq -3$

impossible.

no solution

7. $5 + |2v - 4| > 29$

$|2v-4| > 24$ or

$2v-4>24$ or $2v-4<-24$

$2v>28$ $2v<-20$

$v>14$ or $v<-10$

8. $-3\left|\frac{1}{2}x+2\right| + 6 < -20$

$-3\left|\frac{1}{2}x+2\right| < -26$

$\left|\frac{1}{2}x+2\right| > \frac{26}{3}$ or

$\frac{1}{2}x+2>\frac{26}{3}$ or $\frac{1}{2}x+2<-\frac{26}{3}$

$\frac{1}{2}x>\frac{20}{3}$ $\frac{1}{2}x<-\frac{32}{3}$

$x>\frac{40}{3}$ or $x<\frac{-64}{3}$

Solve each compound Inequality

9. $5v - 6 \leq 36$ or $9 + 2v > 15$

$5v \leq 30$ $2v > 6$

$v \leq 6$ or $v > 3$

10. $68 < 5 - 9n \leq 77$

$63 < -9n \leq 72$

$-7 > n \geq -8$

rewrite:

$-8 \leq n < -7$