College Math

Name KEY

Solving with Absolute Value - NOTES

Date_____

Solve each equation.

1) $|r| = 1$

$r=1, r=-1$

2) $|x| = 2$

$x=2, -2$

3) $|-10+n| = 6$

① $-10+n=6$

$n=16$

② $-10+n=-6$

$n=4$

4) $\left|\frac{p}{7}\right| = 1$

① $\frac{p}{7}=1$

$p=7$

② $\frac{p}{7}=-1$

$p=-7$

5) $|-10p+4| = 86$

① $-10p+4=86$

$-10p=82$

$p=-8.2$

② $-10p+4=-86$

$-10p=-90$

$p=9$

6) $|x+3|+7=8$

$-7 \quad -7$

$|x+3|=1$

① $x+3=1$

$x=-2$

② $x+3=-1$

$x=-4$

★ GET RID OF ANY NUMBERS OUTSIDE OF THE ABSOLUTE VALUE SIGNS FIRST.

7) $|m+6|-7=3$

$+7 \quad +7$

$|m+6|=10$

① $m+6=10$ → $m=4$

② $m+6=-10$ → $m=-16$

8) $3\left|\frac{v}{10}\right|-1=2$

$+1 \quad +1$

$\frac{3\left|\frac{v}{10}\right|}{3}=\frac{3}{3}$

$\left|\frac{v}{10}\right|=1$

① $\frac{v}{10}=1$ → $v=10$

② $\frac{v}{10}=-1$ → $v=-10$

9) $-6+8|-1+x|=34$

$+6 \quad +6$

$\frac{8|-1+x|}{8}=\frac{40}{8}$

$|-1+x|=5$

① $-1+x=5$ → $x=6$

② $-1+x=-5$ → $x=-4$

Solve each inequality.

10) $|v-5|\le 3$

① $v-5\le 3$ → $v\le 8$

② $v-5\ge -3$ → $v\ge 2$

11) $|-4b+2|<18$

① $-4b+2<18$

$-4b<16$

$b>-4$

② $-4b+2>-18$

$-4b>-20$

$b<5$

12) $\frac{|8x-2|}{4}<2$

$|8x-2|<8$

① $8x-2<8$

$8x<10$

$x<1.25$

② $8x-2>-8$

$8x>-6$

$x>-.75$

13) $-8|8+2m|-7\le -103$

$+7 \quad +7$

$\frac{-8|8+2m|}{-8}\le\frac{-96}{-8}$

$|8+2m|\ge 12$

① $8+2m\ge 12$

$2m\ge 4$

$m\ge 2$

② $8+2m\le -12$

$2m\le -20$

$m\le -10$