ALGEBRA II - ACADEMIC

Name Key

STUDY GUIDE (2.8)

Date _____ Period ____

Solve each equation.

1) $|x-2|=5$

$x-2=5$ $+2\ +2$ → $x=7$

$x-2=-5$ $+2\ +2$ → $x=-3$

2) $|3x-9|=-12$

$\emptyset$

3) $-5|-4k-8|=-80$

$\frac{-5}{-5}\quad\frac{-80}{-5}$

$|-4k-8|=16$

$-4k-8=16$ $+8\ +8$ → $\frac{-4k}{-4}=\frac{24}{-4}$ → $k=-6$

$-4k-8=-16$ $+8\ +8$ → $\frac{-4k}{-4}=\frac{-8}{-4}$ → $k=2$

4) $|6p-10|-3=-3$

$+3\ +3$

$|6p-10|=0$

$6p-10=0$ $+10\ +10$ → $\frac{6p}{6}=\frac{10}{6}$ → $p=5/3$

5) $\frac{|5n+3|}{7}=5\cdot 7$

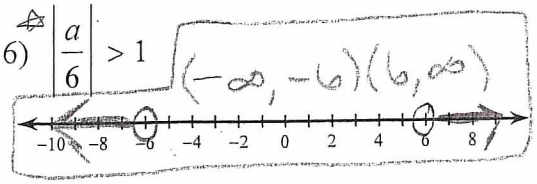
$|5n+3|=35$

$5n+3=35$ $-3\ -3$ → $\frac{5n}{5}=\frac{32}{5}$ → $n=32/5$

$5n+3=-35$ $-3\ -3$ → $\frac{5n}{5}=\frac{-38}{5}$ → $n=-38/5$

Solve each inequality and graph its solution. (interval notation)

6) $\left|\frac{a}{6}\right| > 1$

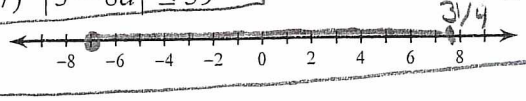


$(-\infty, -6)(6, \infty)$

$\frac{a}{6} > 1$ OR $\frac{a}{6} < -1$

$a > 6$ OR $a < -6$

7) $|3 - 8a| \leq 59$



$[-7, 3/4]$

$3 - 8a \leq 59$ AND $3 - 8a \geq -59$

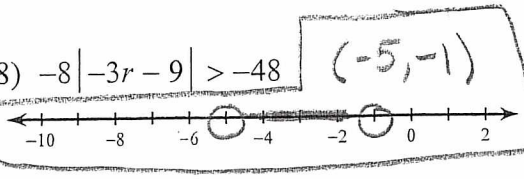
$-3 \quad -3 \qquad -3 \quad -3$

$-8a \leq 56 \qquad -8a \geq -62$

$\frac{-8a}{-8} \leq \frac{56}{-8} \qquad \frac{-8a}{-8} \leq \frac{-62}{-8}$

$a \geq -7 \qquad a \leq 31/4\ (7.75)$

8) $-8|-3r - 9| > -48$



$(-5, -1)$

$\frac{-8|-3r-9|}{-8} > \frac{-48}{-8}$

$\star\ |-3r - 9| < 6$

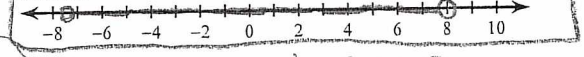
$-3r - 9 < 6$ AND $-3r - 9 > -6$

$+9 \quad +9 \qquad +9 \quad +9$

$\frac{-3r}{-3} < \frac{15}{-3} \qquad \frac{-3r}{-3} > \frac{3}{-3}$

$r > -5$ AND $r < -1$

9) $|2 - 9m| - 8 < 62$



$(-68/9, 8)$

$|2 - 9m| - 8 < 62$

$+8 \quad +8$

$\star\ |2 - 9m| < 70$

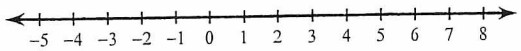
$2 - 9m < 70$ AND $2 - 9m > -70$

$-2 \quad -2 \qquad -2 \quad -2$

$\frac{-9m}{-9} < \frac{68}{-9} \qquad \frac{-9m}{-9} > \frac{-72}{-9}$

$m > -68/9\ (\approx -7.555\ldots) \qquad m < 8$

10) $10 + |-2n - 9| < -21$



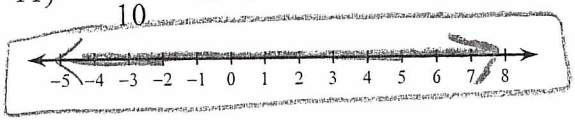
$10 + |-2n - 9| < -21$

$-10 \qquad -10$

$\star\ |-2n - 9| < -31$

$\emptyset$

11) $\frac{|3x - 9|}{10} \geq -1$

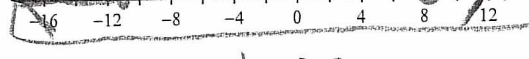


$10 \cdot \frac{|3x-9|}{10} \geq -1 \cdot 10$

$|3x - 9| \geq -10$

TR $(-\infty, \infty)$

12) $2|3 + 2n| \geq 38$



$(-\infty, -11][8, \infty)$

$\frac{2|3+2n|}{2} \geq \frac{38}{2}$

$|3 + 2n| \geq 19$

$3 + 2n \geq 19$ OR $3 + 2n \leq -19$

$-3 \quad -3 \qquad -3 \quad -3$

$\frac{2n}{2} \geq \frac{16}{2} \qquad \frac{2n}{2} \leq \frac{-22}{2}$

$n \geq 8$ OR $n \leq -11$