

### P.7 Quick Review

Solve for x.

1.  $-3 < 2x+1 < 9$

2.  $|2x+1|=3$

3. Factor completely.  $4x^2-9$

4. Reduce the fraction to lowest terms.  $\frac{x^2-49}{x^2+7x}$

5. Add the fractions and simplify.  $\frac{x}{x+1} + \frac{x+2}{x}$

$$\frac{2x^2+3x+2}{x(x+1)} \leftarrow \frac{x^2+x^2+3x+2}{x(x+1)}$$

Sep 27-7:41 PM

### Quick Review Solutions

Solve for x.

1.  $-3 < 2x+1 < 9 \quad -2 < x < 4$

2.  $|2x+1|=3 \quad x=-2 \text{ or } x=1$

3. Factor completely.  $4x^2-9 \quad (2x-3)(2x+3)$

4. Reduce the fraction to lowest terms.  $\frac{x^2-49}{x^2+7x} \quad \frac{x-7}{x}$

5. Add the fractions and simplify.  $\frac{x}{x+1} + \frac{x+2}{x} \quad \frac{2x^2+3x+2}{x^2+x}$

Sep 27-7:42 PM

### Solving Absolute Value Inequalities

Let  $u$  be an algebraic expression in  $x$  and let  $a$  be a real number with  $a \neq 0$ .

1. If  $|u| < a$ , then  $u$  is in the interval  $(-a, a)$ . That is,

$|u| < a$  if and only if  $-a < u < a$ .

2. If  $|u| > a$ , then  $u$  is in the interval  $(-\infty, -a)$  or  $(a, \infty)$ . That is,

$|u| > a$  if and only if  $u < -a$  or  $u > a$ .

The inequalities  $<$  and  $>$  can be replaced with  $\leq$  and  $\geq$ , respectively.

Sep 27-7:45 PM

### Example

Solve  $|x+3| < 5$ .

$$\begin{aligned} -5 &< x+3 < 5 \\ -3 &\quad -3 \quad -3 \\ \hline -8 &< x < 2 \end{aligned}$$

Sep 27-7:46 PM

example

$$|7x+2| > 5$$

$$\begin{array}{l} 7x+2 < -5 \quad \text{or} \quad 7x+2 > 5 \\ \underline{-2 \quad -2} \qquad \qquad \underline{-2 \quad -2} \\ \frac{7x}{7} < \frac{-7}{7} \qquad \qquad \frac{7x}{7} > \frac{3}{7} \\ x < -1 \quad \text{or} \quad x > \frac{3}{7} \end{array}$$

Sep 29-10:12 AM

Solving quadratic inequalities

Find the x-intercepts

Test value

Sep 29-9:58 AM

Example

Solve  $x^2 + 3x + 2 < 0$ .

$$(x+2)(x+1)$$

$x = -2 \quad x = -1$

$-2 < x < -1$

$x = -3$	$x = -1.5$	$x = 0$
$(-3)^2 + 3(-3) + 2 < 0$	$(-1.5)^2 + 3(-1.5) + 2 < 0$	$2 < 0$
$2 < 0$	$2.25 - 4.5 + 2 < 0$	no
no	$-0.25 < 0$	
	yes	

Sep 27-7:55 PM

HW

p64 #5,7,9,11

p66 1,5,13,17,19,23,

32,34,37-80

Sep 27-8:08 PM