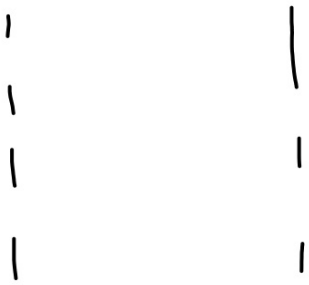
Algebra 2 8.6
Solve rational equations
Solve rational inequalities
Solve mixture problems (Alg 1)
solution
excluded value
interval

WS 8.6 pr 1-23 odd

Quiz 8.5-8.6 Thurs. or Fri?

1. Solve =
2. Zone
3. Zone-D

Zone defense (?)



$\frac{1}{2} + \frac{6}{50} > \frac{2}{3}$ $\frac{31}{50} ? \frac{2}{3}$

GuidedPractice Solve each inequality.

6A. $\frac{5}{x} + \frac{6}{5x} \geq \frac{2}{3}$ 0.62 6.66

$15x \cdot \frac{5}{x} + 15x \cdot \frac{6}{5x} = 15x \cdot \frac{2}{3}$

LCM 3.5 $x = 15x$

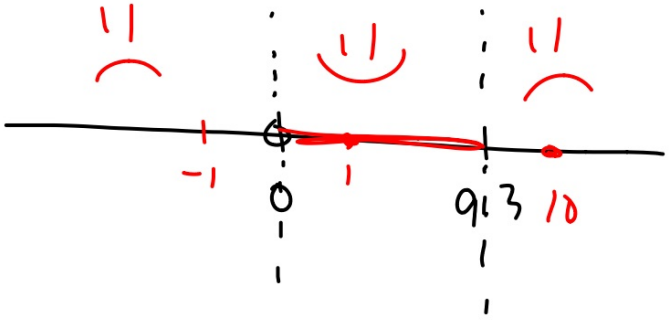
$75 + 18 = 10x$ $x = 9.3$

$93 = 10x$

can't be excluded value(s) $x = 0$

solution(s) $x = 9.3$

test intervals



$0 < x \leq 9.3$

6B. $\frac{4}{3x} + \frac{7}{x} < \frac{5}{9}$

$\frac{4}{60} + \frac{7}{20} < \frac{5}{9}$

0.42

$\frac{4}{3x} + \frac{7}{x} = \frac{5}{9}$ (multiplying by $9x$: 3, $9x$, $9x$)

$12 + 63 = 5x$

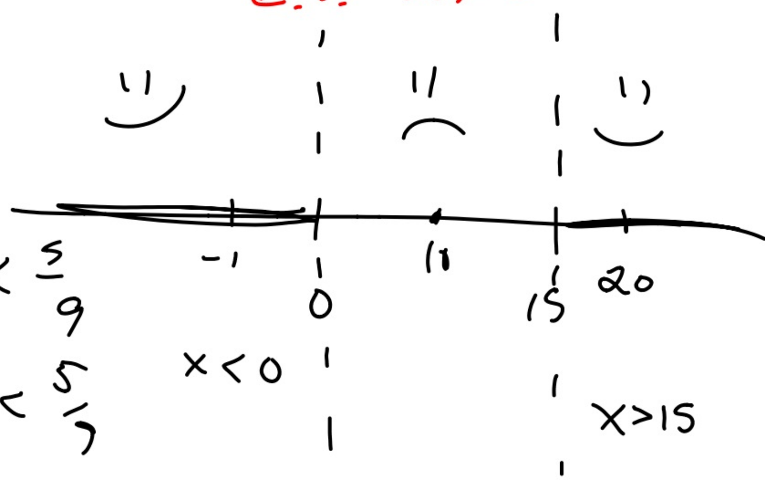
$75 = 5x$

$15 = x$

$\frac{4}{-3} + \frac{7}{-1} < \frac{5}{9}$

$-1.3 + -7 < \frac{5}{9}$

E.V. $x \neq 0$



$x < 0$

$x > 15$

Example 6 Solve a Rational Inequality

Solve $\frac{x}{3} - \frac{1}{x-2} < \frac{x+1}{4}$.

excluded values
solutions
test intervals

30. $\frac{x}{x+2}+\frac{1}{x-1}<\frac{3}{2}$

$2(x+2)(x-1) \quad 2(x+2)(x-1) \quad 2(x+2)(x-1)$

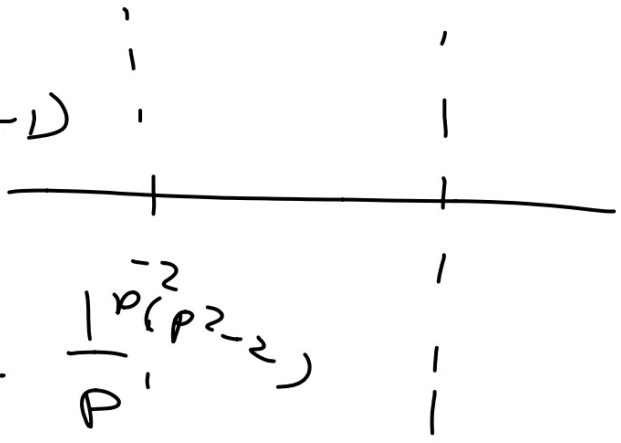
$2x(x-1)+2(x+2) < 3(x+2)(x-1)$

$p(p^2-2)$

$p^2-2=0$

$\sqrt{p^2}=\sqrt{2}$

$p=\pm\sqrt{2}$



Algebra 1 % x amount

9. CCSS **STRUCTURE** Sara has 10 pounds of dried fruit selling for $6.25 per pound. She wants to know how many pounds of mixed nuts selling for $4.50 per pound she needs to make a trail mix selling for $5 per pound.

a. Let m = the number of pounds of mixed nuts. Complete the following table.

	Pounds	Price per Pound	Total Price
Dried Fruit	10	$6.25	6.25(10) = 62.50
Mixed Nuts	x ?	4.50	4.50x
Trail Mix	x+10	5	5(x+10)

What do I know for sure?

$4.50x + 62.50 = 5(x+10)$

D=RT T=D/R

Real-World Example 4 Distance Problem

ROWING Sandra is rowing a canoe on Stanhope Lake. Her rate in still water is 6 miles per hour. It takes Sandra 3 hours to travel 10 miles round trip. Assuming that Sandra rowed at a constant rate of speed, determine the rate of the current.

Time with the Current	Time Against the Current	Total Time
?	(?)	3
5	5	10

$\frac{D}{r} = \frac{rt}{r}$ t=d/r

$t = \frac{D}{r}$

$\frac{5}{6-r} + \frac{5}{r+6} = \frac{3}{1}$

$5(r+6) + 5(6-r) = 3(36-r^2)$

T = D/R 1184

4. FLYING The speed of the wind is 20 miles per hour. If it takes a plane 7 hours to fly 2368 miles round trip, determine the plane's speed in still air.

$$\left(\frac{1184}{p+20}\right)+\left(\frac{1184}{p-20}\right)=7$$

T = D/R

4. FLYING The speed of the wind is 20 miles per hour. If it takes a plane 7 hours to fly 2368 miles round trip, determine the plane's speed in still air.

Real-World Example 5 Work Problems

COMMUNITY SERVICE Every year, the junior and senior classes at Hillcrest High School build a house for the community. If it takes the senior class 24 days to complete a house and 18 days if they work with the junior class, how long would it take the junior class to complete a house if they worked alone?

What is their rate?
Answer the question.