

Solving Review

$$\textcircled{1} \frac{2}{1} = \frac{x+2}{x+3}$$

$$2(x+3) = x+2$$

$$2x+6 = x+2$$

$$x = -4 \quad \{x \neq -3\}$$

check

$$2 \stackrel{?}{=} \frac{-4+2}{-4+3} \checkmark$$

$$\textcircled{2} \frac{x^2}{3x-1} + 2 = \frac{2(x-3)}{3x-1}$$

LCD: $3x-1$

$$x^2 + 2(3x-1) = 2(x-3)$$

$$x^2 + 6x - 2 = 2x - 6$$

$$x^2 + 4x + 4 = 0$$

$$(x+2)(x+2) = 0$$

$$x = -2 \quad \{x \neq \frac{1}{3}\}$$

$$x = 4$$

check

$$\frac{(-2)^2}{3(-2)-1} + 2 \stackrel{?}{=} \frac{2(-2-3)}{3(-2)-1}$$

$$\frac{4}{-7} + 2 = \frac{-10}{-7}$$

$$\frac{4}{-7} + \frac{-14}{-7} = \frac{-10}{-7} \checkmark$$

③

$$\frac{x}{2x-1} - \frac{2}{2x+1} = \frac{x^2+20}{4x^2-1}$$

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

LCD: $(2x+1)(2x-1)$

$$x(2x+1) - 2(2x-1) = x^2+20$$

$$2x^2+x-4x+2 = x^2+20$$

$$x^2-3x-18=0$$

$$(x-6)(x+3)=0$$

$x=6, -3$

$\{x \neq \frac{1}{2}, -\frac{1}{2}\}$

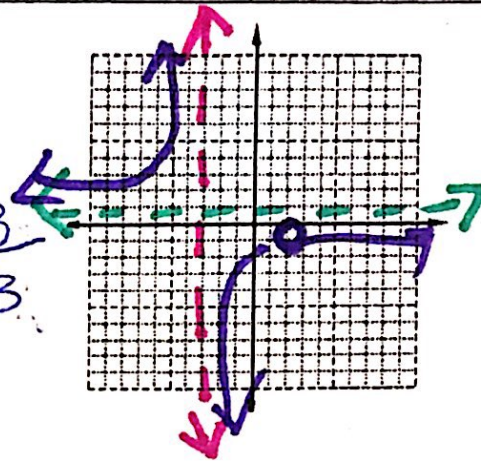
Rational Functions: Putting it all together!

Name _____

1. $f(x) = \frac{5(x-3)(x+3)(x-2)}{6(x+3)^2(x-2)}$

$\{x \neq 2, -3\}$

degree 3
Degree 3



a. hole(s)	b. vertical asymptote(s)	c. horizontal asymptote	d. domain	e. range
$x=2$	$x=-3$	$y=\frac{5}{6}$	\mathbb{R} except $x \neq 2, -3$	\mathbb{R} except $y \neq \frac{5}{6}$