

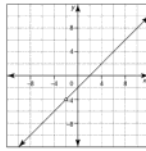
C_24 Chapter 9 Test Warm-up

Chapter 9 Warm-Up

1. Complete the table for the given rational function.

Characteristic	$y = \frac{(2x-1)(x+5)}{(x-4)(x+5)}$
Non-permissible value(s)	
Equations of vertical and horizontal asymptotes	
Coordinates of any points of discontinuity	
Coordinates of x-intercept(s)	
Coordinates of y-intercept	

2. Write the equation of the rational function shown at right.



3. Solve the equation algebraically. Verify graphically.

$$\frac{2}{x^2-1} - \frac{1}{x-1} = \frac{1}{2}$$

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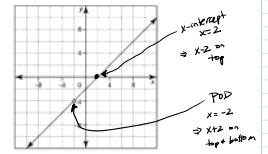
1. Complete the table for the given rational function.

Characteristic	$y = \frac{(2x-1)(x+5)}{(x-4)(x+5)}$
Non-permissible value(s)	$x=4, x=-5$
Equations of vertical and horizontal asymptotes	v.a. $x=4$ h.a. $\frac{2x-1}{x-4} \Rightarrow \frac{2}{1} \Rightarrow y=2$
Coordinates of any points of discontinuity	$x=-5$ $y = \frac{2(-5)}{-5-4} = \frac{-10}{-9} = \frac{10}{9}$ $(-5, \frac{10}{9})$
Coordinates of x-intercept(s)	$x\text{-int: } 0 = \frac{2x-1}{x-4} \Rightarrow 0 = 2x-1 \Rightarrow x = \frac{1}{2}$ $(\frac{1}{2}, 0)$
Coordinates of y-intercept	$y\text{-int: } y = \frac{2(0)-1}{0-4} = \frac{-1}{-4} = \frac{1}{4}$ $(0, \frac{1}{4})$

2. Write the equation of the rational function shown at right.

$$y = \frac{(x+2)(x-2)}{x+2}$$

OR $y = \frac{x^2-4}{x+2}$



3. Solve the equation algebraically. Verify graphically.

$$\frac{2}{x^2-1} - \frac{1}{x-1} = \frac{1}{2}$$

NPV $x = -1$
 $x = 1$

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

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

$$2(x+1) - 2(x+1)(1) = (x+1)(x-1) \cdot \left(\frac{1}{2}\right)$$

$$4 - [2x+2] = (x^2 - x - 1)$$

$$4 - 2x - 2 = x^2 - x - 1$$

$$0 = x^2 + 2x - 1 - 4 + 2$$

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

$$0 = (x-1)(x+3)$$

$x-1=0 \Rightarrow x=1$ (NPV/Reject this)

$x+3=0 \Rightarrow x=-3$

Verify: