

Graphing Rational Functions Practice

1. $y = \frac{x-1}{x^2-4}$

x-intercepts: (1,0) y-intercepts: (0, 1/4)

OA-intercepts: n/a HA-intercepts:

Hole: none crosses @ x=1

VA: x=2, x=-2

HA: y=0 OA: none

Local Max: none

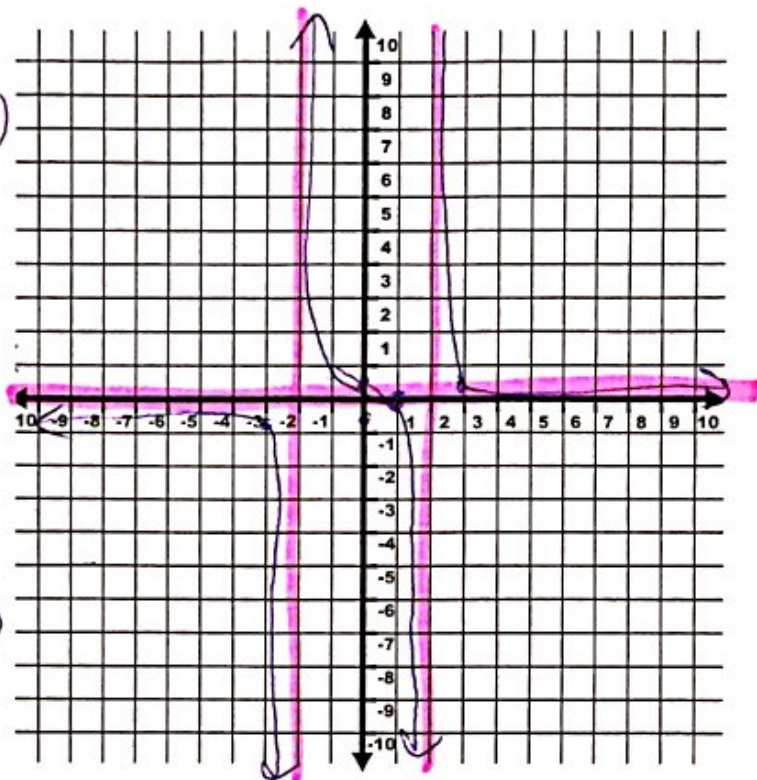
Local Min: none

Increasing: none

Decreasing: $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

Domain: same \rightarrow

Range: $(-\infty, \infty)$



2. $y = \frac{x^2-2x-8}{x^2+x-2} = \frac{(x-4)(x+2)}{(x+2)(x-1)}$

x-intercepts: (4,0) y-intercepts: (0, 4)

OA-intercepts: none HA-intercepts: none

Hole: (-2, 2)

VA: x=1

HA: y=1 OA: none

Local Max: None

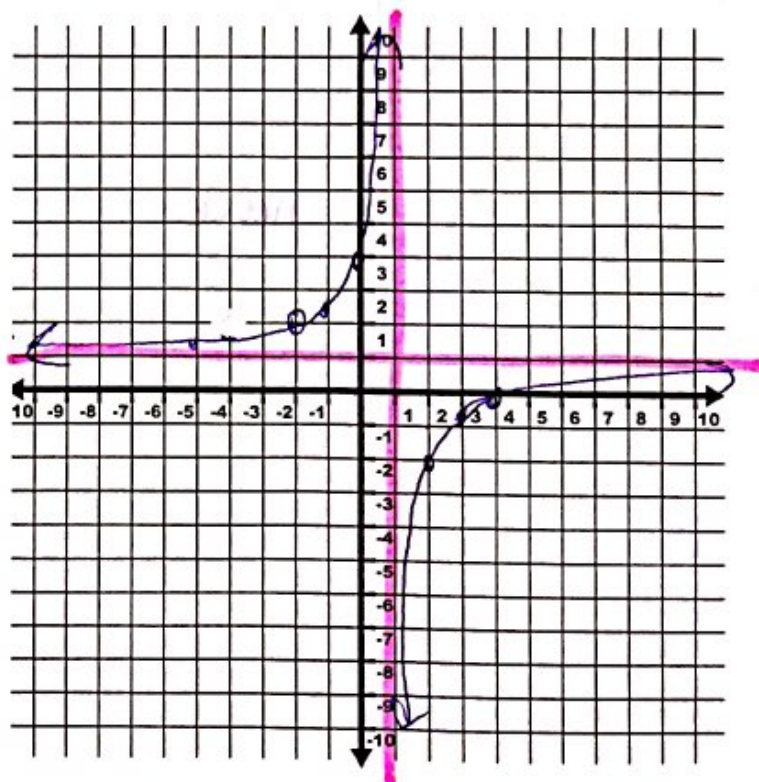
Local Min: None

Increasing: $(-\infty, -2) \cup (-2, 1) \cup (1, \infty)$

Decreasing: none

Domain: $(-\infty, -2) \cup (-2, 1) \cup (1, \infty)$

Range: $(-\infty, 1) \cup (1, 2) \cup (2, \infty)$



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

x-intercepts: $(2,0)$, $(-1,0)$ y-intercepts: $(0,2)$

OA-intercepts: none HA-intercepts: none

Hole: none

VA: $x=1$

HA: none

OA: $y=x$

Local Max: None

Local Min: None

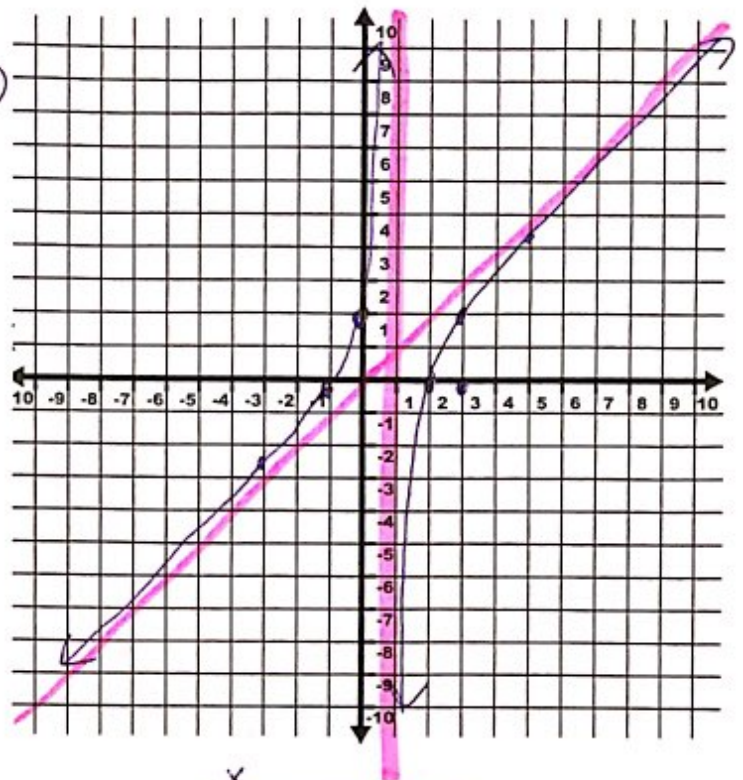
Increasing: $(-\infty, 1) \cup (1, \infty)$

Decreasing: none

Domain: $(-\infty, 1) \cup (1, \infty)$

Range:

$(-\infty, \infty)$



$$\begin{array}{r} x \\ x-1 \overline{) x^2 - x - 2} \\ \underline{-(x^2 - x)} \\ -2 \end{array}$$

$$4. y = \frac{3x^2 - 3x}{x^2 + x - 12} \frac{3x(x-1)}{(x+4)(x-3)}$$

x-intercepts: $(0,0)$, $(1,0)$ y-intercepts: $(0,0)$

OA-intercepts: none HA-intercepts: crosses at $x=0$

Hole: none

VA: $x=-4, 3$

HA: $y=3$

OA: none

Local Max: $(.5228, 6.0668)$

Local Min: $(11.477, 2.7495)$

Increasing: $(-\infty, -4) \cup (-4, .523) \cup (11.477, \infty)$

Decreasing: $(.523, 3) \cup (3, 11.477)$

Domain: $(-\infty, -4) \cup (-4, 3) \cup (3, \infty)$

Range:

$(-\infty, .0668) \cup (2.7495, \infty)$

