

Rational Functions Classwork

Find the horizontal, vertical, oblique asymptotes and identify the domain for each.

1. $R(x) = \frac{4x}{x-3}$

Domain: $x \in \mathbb{R}, x \neq 3$

VA: $x=3$

HA: $y=4$

OA: N/A

2. $h(x) = \frac{5x^2}{3+x}$

Domain: $x \in \mathbb{R}, x \neq -3$

VA: $x=-3$

HA: N/A

OA: $y=5x-15$

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

Domain: $x \in \mathbb{R}, x \neq 2, -4$

VA: $x=2, x=-4$

HA: $y=-4$

OA: N/A

4. $G(x) = \frac{6}{(x+3)(4-x)}$

Domain: $x \in \mathbb{R}, x \neq -3, 4$

VA: $x=-3, x=4$

HA: $y=0$

OA: N/A

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

Domain: $x \in \mathbb{R}, x \neq -1/2, 3$

VA: $x=-1/2, x=3$

HA: $y=3/2$

OA: N/A

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

Domain: $x \in \mathbb{R}, x \neq 1/3, -2$

VA: $x=1/3, x=-2$

HA: $y=1/3$

OA: N/A

7. $g(x) = \frac{x}{x^3-8}$

Domain: $x \in \mathbb{R}, x \neq 2$

VA: $x=2$

HA: $y=0$

OA: N/A

8. $R(x) = \frac{x}{x^4-1}$

Domain: $x \in \mathbb{R}, x \neq 1, -1$

VA: $x=1, x=-1$

HA: $y=0$

OA: N/A

9. $H(x) = \frac{3x^2+x}{x^2+4}$

Domain: $x \in \mathbb{R}$

VA: N/A

HA: $y=3$

OA: N/A

10. $g(x) = \frac{x-3}{x^4+1}$

Domain: $x \in \mathbb{R}$

VA: N/A

HA: $y=0$

OA: N/A

11. $g(x) = \frac{5}{x^2-36}$

Domain: $x \in \mathbb{R}, x \neq 6, -6$

VA: $x=6, x=-6$

HA: $y=0$

OA: N/A

12. $k(x) = \frac{2x^2-3}{6x^2}$

Domain: $x \in \mathbb{R}, x \neq 0$

VA: $x=0$

HA: $y=1/3$

OA: N/A