13) $f(x) = \frac{1}{x^2}$

Domain $\rightarrow x \neq 0$

V. A. $\rightarrow x = 0$

H. A. $\rightarrow y = 0$

14) $f(x) = \frac{3}{(x-2)^3}$

$(x-2)^3 \neq 0$

$x - 2 \neq 0$

$x \neq 2$

Domain $\rightarrow x \neq 2$

V. A $\rightarrow x = 2$

H. A. $\rightarrow y = 0$

18) $f(x) = \dfrac{x^2-25}{x^2+5x}$

$x^2+5x \neq 0$

$x(x+5) \neq 0$

$x \neq 0 \quad x+5 \neq 0$

$x \neq -5$

Domain → $x \neq 0, x \neq -5$

V. A. → $x = 0$

H. A → $y = 1$

$f(x) = \dfrac{(x+5)(x-5)}{x(x-5)}$

19) $f(x) = \dfrac{3x^2+x-5}{x^2+1}$

$x^2+1 \neq 0$

$\sqrt{x^2} \neq \sqrt{-1}$

D → $\mathbb{R}$

V.A. → none

H.A. → $y = 3$

21) $f(x) = \frac{x-3}{|x|}$ → $\frac{x-3}{x}$ ↘ $\frac{x-3}{-x}$

D → $x \neq 0$

V.A. → $x = 0$

H.A. → $y = 1$, $y = -1$

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

$2x - 1 = 0$
$2x = 1$
$x = 1/2$

D → $x \neq 0$

V.A → $x = 0$ Holes → none

H.A → $y = 2$

X-Int → $(1/2, 0)$ y-Int → none

18) $f(x) = \dfrac{x^2-25}{x^2+5x}$

Domain $\rightarrow x \neq 0, x \neq -5$

V.A. $\rightarrow x = 0$ Holes $\Rightarrow x = -5$

H.A $\rightarrow y = 1$

X-Int $\rightarrow (5,0)$ y-Int $\rightarrow$ none

$x^2 - 25 = 0$

$\sqrt{x^2} = \sqrt{25}$

$x = \pm 5$

$f(x) = \dfrac{3}{1} - \dfrac{2}{x-4}$

$\dfrac{3x-12}{x-4} - \dfrac{2}{x-4}$

$f(x) = \dfrac{3x-14}{x-4}$

$3x - 14 = 0$

$3x = 14$

$x = 14/3$

D $\rightarrow x \neq 4$

V.A. $\rightarrow x = 4$

Holes $\rightarrow$ none

H.A. $\rightarrow y = 3$

X-Int $\rightarrow (14/3, 0)$

y-Int $\rightarrow (0, 7/2)$

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