

P193 #5, 7, 9, 13-16, 17, 23, 24

⑤  $f(x) = \frac{1}{x^2}$       $D: \{x \mid x \neq 0\}$

VA:  $x = 0$

HA:  $y = 0$

⑦  $f(x) = \frac{2+x}{2-x}$

$D: \{x \mid x \neq 2\}$

VA:  $x = 2$

HA:  $y = -1$

$\frac{1}{-1} = -1$

⑨  $f(x) = \frac{x^3}{x^2-1}$

$D: \{x \mid x \neq \pm 1\}$

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

HA: none

⑬  $f(x) = \frac{2}{x+3}$

$D: \{x \mid x \neq -3\}$

VA:  $x = -3$

HA:  $y = 0$

ⓓ

⑭  $f(x) = \frac{1}{x-5}$

$D: \{x \mid x \neq 5\}$

VA:  $x = 5$

HA:  $y = 0$

Ⓐ

$$(15) f(x) = \frac{x-1}{x-4}$$

$$D: \{x \mid x \neq 4\}$$

$$VA: x=4$$

$$HA: y=1$$

(C)

$$(16) f(x) = -\frac{x+2}{x+4}$$

$$D: \{x \mid x \neq -4\}$$

$$VA: x=-4$$

$$HA: y=-1$$

(B)

$$(17) g(x) = \frac{x^2-1}{x+1}$$

$$x^2-1=0$$

$$x^2=1$$

$$x = \pm\sqrt{1} = \pm 1$$

$$x \neq -1 \quad \therefore \boxed{x=1}$$

$$(23) f(x) = \frac{x^2-1}{x^2-2x-3} = \frac{(x+1)(x-1)}{(x+1)(x-3)}$$

$$D: \{x \mid x \neq -1, 3\}$$

$$VA: \cancel{x=-1}, x=3$$

$$HA: y = \frac{1}{3} = 1$$

not here since there's a hole!

$$(24) f(x) = \frac{x^2-4}{x^2-2x+2} = \frac{(x+2)(x-2)}{(x-2)(x-1)}$$

$$D: \{x \mid x \neq 2, 1\}$$

$$VA: x=1$$

(not  $x=2$  since hole)

$$HA: y = \frac{1}{1} = 1$$

Hole!

