

## 2.6 Limits at Infinity; Horizontal Asymptotes

### 單選題

1. How many horizontal, vertical and slant **asymptotes** does the function

$$f(x) = \frac{\sqrt{3x^2+1}}{3x-5} \text{ has ?}$$

- (A) 1;      (B) 2;      (C) 3;      (D) 4.

Ans: C [103 學年度]

### 多選題

1. Find the equations of the vertical and horizontal asymptotes of the curve

$$y = \frac{x}{x-1} \sin\left(\frac{1}{x}\right).$$

- (A)  $x = 0$ ;      (B)  $x = 1$ ;      (C)  $y = 0$ ;      (D)  $y = 1$ .

Ans: BC [101 學年度]

2. Which of the following lines is an (horizontal, vertical, slant) asymptote of

$$y = \frac{\sqrt{e^{2x}+x^2}}{e^x-1}.$$

- (A)  $x = 0$ ;      (B)  $y = 1$ ;      (C)  $y = -1$ ;      (D)  $y = x$ .

Ans: ABD [104 學年度]

### 填充題

1. The **slant** asymptote of  $f(x) = \frac{9x^4+x^3+6x^2+5}{x^3+2x^2+x+5}$  is \_\_\_\_\_.

Ans:  $y = 9x - 17$  (or  $9x - y - 17 = 0$ ) [102 學年度]