Asymptotes - Key

In problems 1-4, Find the vertical and horizontal asymptotes.

1. $VA: x = -2, x = 2$ $HA: y = \dfrac{3}{4}$	2. $VA: x = -3$ $HA: y = 1$
3. $VA: x = 2, x = 10$ $HA: y = 0$	4. $VA: x = 3$ $HA: None$

In problems 5-7, Find the vertical asymptote(s)

5. $VA: x = \dfrac{1}{7}, x = -2$	6. $VA: x = -7$
7. $VA: x = 7$	

In problems 8-10, Use the TI-83/84 to find the limit

8. ∞	9. ∞
10. $-\infty$	

In problems 11-12, Find the limit

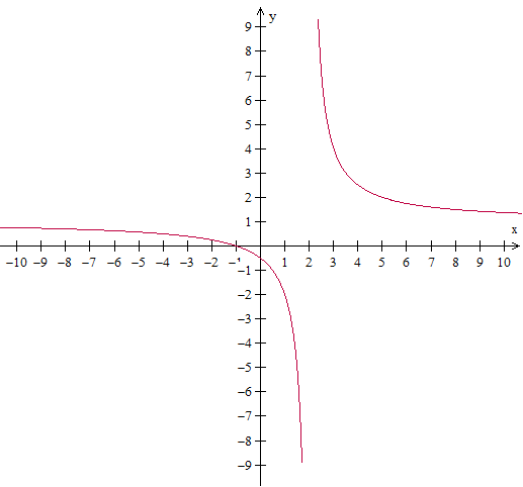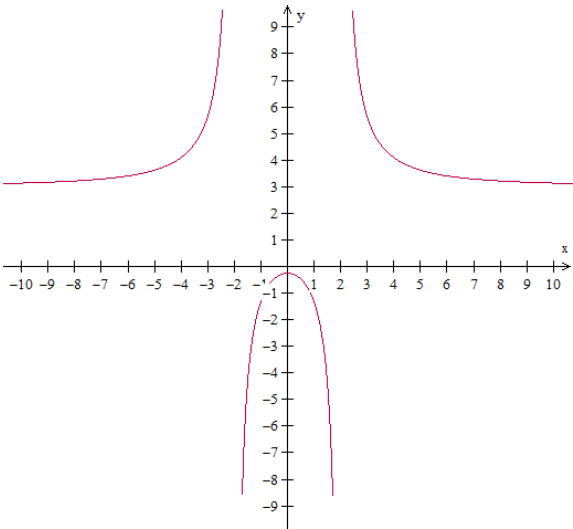| 11. 2	12. 3

In problems 13-17, Find the horizontal asymptotes.

13. $y = \dfrac{7}{5}$	14. $None$
15. $y = 0$	16. $y = 2$
17. $y = 0$	

In problem 18, Find each limit

18.

$a) 0$

$b) \dfrac{3}{4}$

$c) \infty$

In problems 19-22, sketch the graph of the equation. Use intercepts, extrema, and asymptotes.

19.

$\text{x - int} : (-1,0)$

$y - \text{int} : \left(0, \dfrac{-1}{2}\right)$

$VA : x = 2$

$HA : y = 1$

$SA : none$

$dec : (-\infty, 2)$

$dec : (2, \infty)$

no extrema

20.

$\text{x - int} : none$

$y - \text{int} : \left(0, \dfrac{-1}{4}\right)$

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

$HA : y = 3$

$SA : none$

$inc : (-\infty, -2)$

$inc : (-2, 0)$

$dec : (0, 2)$

$dec : (2, \infty)$

$\max : \left(0, \dfrac{-1}{4}\right)$

21.

x - int : $(0.4, 0), (4.6, 0)$

$y - \text{int} : (0,2)$

$VA : x = -1$

$HA : none$

$SA : y = x - 6$
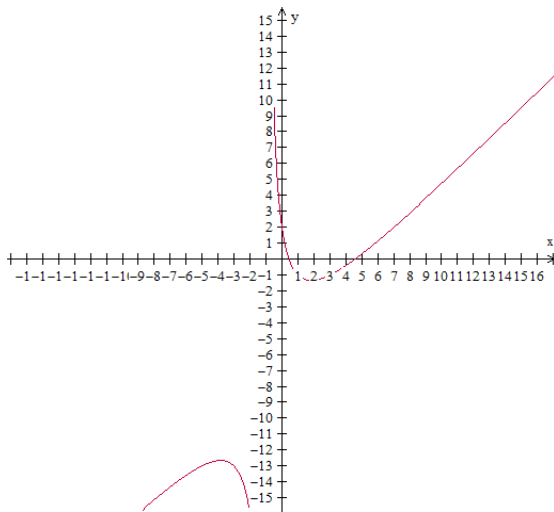
$inc : (-\infty, -3.8)$

$dec : (-3.8, -1)$

$dec : (-1, 1.8)$

$inc : (1.8, \infty)$

$\max : (-3.8, -12.7)$

$\min : (1.8, -1.3)$

22.

x - int : $\left(\dfrac{1}{7}, 0\right)$

$y - \text{int} : \left(0, \dfrac{1}{9}\right)$

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

$HA : y = 0$

$SA : none$

$dec : (-\infty, -3)$

$dec : (-3, 3)$

$dec : (3, \infty)$

$extrema : none$