

I. Find the x-intercepts & discuss the behavior at each x-int.
(Crosses/Bounces)

1. $f(x) = (x - 1)^2(x + 3)$ $(1, 0) \leftarrow \text{bounces}$
 $(-3, 0) \leftarrow \text{crosses}$

2. $f(x) = x^2 - 3x - 10$ (Hint: Factor) $(5, 0) \leftarrow \text{crosses}$
 $(x - 5)(x + 2)$ $(-2, 0) \leftarrow \text{crosses}$

3. $f(x) = x^2 - 8x + 16$ (Hint: Factor) $(4, 0) \text{ bounces}$
 $(x - 4)^2$

4. $f(x) = x^3 - 3x^2 + 4$ (Hint: Find one on the calc./ Use synthetic div./ Factor/
Name the x-ints. & behavior) $(-1, 0) \leftarrow \text{crosses}$
 $(2, 0) \leftarrow \text{bounces}$

I. Determine the equations of all asymptotes for each function.
(Vertical, Horizontal, or slant). Also, name the x-int & y-int.

14. $f(x) = \frac{6}{x^2 - 4x - 12}$
 $(x - 6)(x + 2)$

V.A. $x = 6, x = -2$

H.A. or
Slant: $y = 0$

x-int.: none

y-int.: $(0, -\frac{1}{2})$

$$15. f(x) = \frac{3x-1}{x+1}$$

$$\text{V.A. } \underline{x = -1}$$

$$\text{H.A. or Slant: } \underline{y = 3}$$

$$\text{x-int.: } \underline{\left(\frac{1}{3}, 0\right)}$$

$$\text{y-int.: } \underline{(0, -1)}$$

Calculator \rightarrow

$$16. f(x) = \frac{2x^2 + 3x - 5}{x + 2}$$

$$\text{V.A. } \underline{x = -2}$$

$$\text{H.A. or Slant: } \underline{y = 2x - 1}$$

$$\text{x-int.: } \underline{(1, 0) (-2.5, 0)}$$

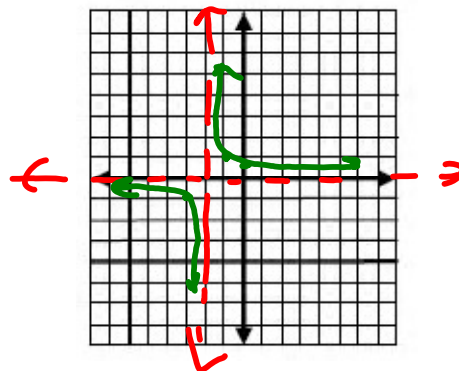
$$\text{y-int.: } \underline{(0, -2.5)}$$

III. Find all asymptotes and graph each function. Use graphing calculator & the table in calculator if necessary.**

$$17. f(x) = \frac{1}{x+2}$$

$$\text{V.A. } \underline{x = -2}$$

$$\text{H.A or S.A. } \underline{y = 0}$$

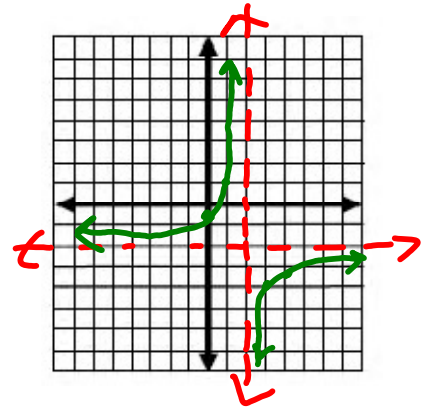


$$18. f(x) = \frac{2x-1}{-x+2}$$

$$\frac{-2x+1}{x-2}$$

$$\text{V.A. } \underline{x=2}$$

$$\text{H.A. or S.A. } \underline{y=-2}$$



$$19. f(x) = \frac{2x^2+3x-4}{x}$$

$$\text{V.A. } \underline{x=0}$$

$$\text{H.A. or S.A. } \underline{y=2x+3}$$

