

The Math Center presents:

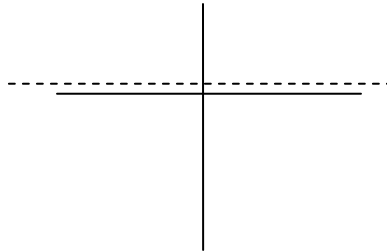
A Tip Sheet on

HORIZONTAL ASYMPTOTES

$$R(X) = \frac{ax^n + L}{bx^m + L}$$

1. $n < m$: Horizontal Asymptote

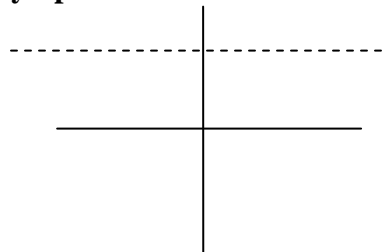
$$y=0$$



$$\frac{x+1}{x(x+4)} = \frac{x+1}{x^2+4x} \quad \begin{array}{l} n=1 \\ m=2 \end{array}$$

2. $n = m$: Horizontal Asymptote

$$y = \frac{a}{b}$$



$$\frac{3x+1}{2x+4} \quad \begin{array}{l} n=1 \\ m=1 \end{array} \quad \begin{array}{l} y=3 \\ 2 \end{array}$$

MCC offers a **Math Lab** at both the Bedford and Lowell campuses. Tutoring is available weekdays and some evenings, at no charge. Schedules are posted on the door. Drop in.

In Bedford: AR 214, Tel: (781) 280-3707

In Lowell: City Campus, Room 406, Tel. (978) 656 - 3368

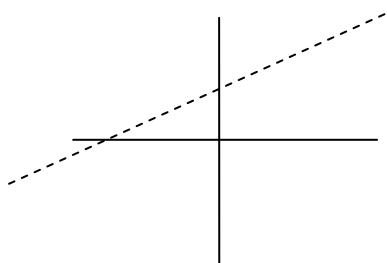
The Math Center presents: A Tip Sheet on

OBLIQUE (SLANT) ASYMPTOTES

3. $n=m+1$: Oblique (Slant) Asymptote

Requires Long Division – Results in Linear Equation ($y=mx+b$)

$$y = \frac{a}{b}x + c$$



$$\frac{2x^2 + 8x - 4}{3x + 3} \quad \begin{matrix} n=2 \\ m=1 \end{matrix}$$

$$3x + 3 \overline{) 2x^2 + 8x - 4}$$

$$\underline{2x^2 + 2x}$$

$$6x - 4$$

$$\underline{6x + 6}$$

$$-10$$

$$y = \frac{2}{3}x + 2$$

4. $n > m+1$:

No Horizontal Asymptote

No Oblique (Slant) Asymptote

$$\frac{3x^4 + 2x^3 + 4x^2 + 2x + 1}{2x^2 + 4x + 3} \quad \begin{matrix} n=4 \\ m=2 \end{matrix}$$

MCC offers a **Math Lab** at both the Bedford and Lowell campuses. Tutoring is available weekdays and some evenings, at no charge. Schedules are posted on the door. Drop in.

In Bedford: AR 214, Tel: (781) 280-3707

In Lowell: City Campus, Room 406, Tel. (978) 656 - 3368