

# PRE-AP ALGEBRA 2

- 1) For  $y = R(x)$  as given, find its horizontal asymptote (H.A.).

a)

$$R(x) = \frac{7x+8}{x-5}$$

neglect  
 $R(x) \rightarrow \frac{7x}{x} = 7$

b)

$$R(x) = \frac{x^2-2x}{3x^3-8}$$

neglect  
 $R(x) \rightarrow \frac{x^2}{3x^3} = \frac{1}{3x} \rightarrow 0$

a)  $y=7$

b)  $y=0$

Problems 2 and 3 concern the function

$$y = R(x) = \frac{x^2-3x-4}{x^2-3x-10} = \frac{(x+1)(x-4)}{(x+2)(x-5)}$$

- 2) Without using your calculator, find:

- The horizontal asymptote (H.A.) of  $y = R(x)$ .
- The vertical asymptotes (V.A.s) of  $y = R(x)$ .
- The  $x$ -intercepts of  $y = R(x)$ .
- The  $y$ -intercept of  $y = R(x)$ .

a)  $R(x) = \frac{x^2-3x-4}{x^2-3x-10}$  neglect

$$R(x) \rightarrow \frac{x^2}{x^2} = 1, y=1$$

- b) denominator is zero at

$$x=-2 \quad x=5$$

- c) numerator is zero at

$$x=-1 \quad x=4$$

d)  $y=R(0) = \frac{-4}{-10} = \frac{2}{5} = 0.4$

# 3B.8 CLASSWORK

- 3) Graph  $y = R(x)$  on the axes below. Include the H.A., V.A.s and  $x$ - and  $y$ -intercepts on the graph.

