

## Sheet #1210 = REVIEW DIFFERENTIAL CALCULUS

1. FIND  $\lim_{x \rightarrow \infty} f(x)$  FOR

a,  $f(x) = \frac{x^2 - 3x + 4}{3x^3 - 5}$

b,  $f(x) = \frac{2x^2 - 14}{x + 2}$

c,  $f(x) = \frac{4x^3 - 12}{-2x^3 + x - 5}$

d, DO ANY ANSWERS CHANGE FOR  $x \rightarrow -\infty$ .

2. a, FIND TANGENT LINE TO

$f(x) = x^3 - 8$  FOR  $x = 1$

b, USE TANGENT LINE TO ESTIMATE  $f(1.1)$ .3. a, FIND  $\frac{dy}{dx}$  FOR  $x^3y^2 + x^2y = 2$ b, FIND  $dy/dx$  AT  $(1, 1)$ .4. FIND CRITICAL POINTS, MAX, MIN AND POINTS OF INFLECTION FOR  $f(x)$  IF

$f'(x) = (x+1)(x-1)(x-2)^2$