

Evaluate the limit of the following:

1. $\lim_{x \rightarrow 1} \frac{x^3 + 5x + 6}{x + 1}$

= $\frac{1.0001^3 + 5(1.0001) + 6}{1.0001 + 1} = \boxed{6}$

2. $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x^2 + 2x - 8}$

= $\frac{2.0001^2 - 4}{2.0001^2 + 2(2.0001) - 8} = \boxed{0.7 \text{ or } \frac{3}{4}}$

3. $\lim_{x \rightarrow 0} \frac{1}{x}$

= $\frac{1}{0.0001} = 10,000 = \boxed{\infty}$

4. $\lim_{x \rightarrow \infty} \frac{3x^2 - 2x + 4}{-2x^2 - 3x^3 + 2}$

= $\frac{3(99999)^2 - 2(99999) + 4}{-2(99999)^2 - 3(99999)^3 + 2} = \boxed{-1.5 \text{ or } -\frac{3}{2}}$

Determine the equation of the vertical, horizontal, or inclined asymptote(s) of the following functions.

5. $y = \frac{3x}{x - 5}$

m+n; $y = \frac{3}{1} = 3$

$\boxed{y = 3}$ HA

$x - 5 = 0$

$\boxed{x = 5}$ VA

NO INCLINED ASYMPTOTE

6. $y = \frac{2x^4}{x^4 - 3x^2 - 1}$

m+n; $y = \frac{2}{1} = 2$

$\boxed{y = 2}$ HA

$x^4 - 3x^2 - 1 = 0$

$\boxed{x = \pm 1.618}$

$\boxed{x = \pm 0.55}$ VA

NO INCLINED ASYMPTOTE

7. $y = \frac{2x}{x^2 - 5}$

m < 0 $\boxed{y = 0}$ HA

$x^2 - 5$

$\boxed{x = \pm \sqrt{5}}$ VA

NO INCLINED ASYMPTOTE

8. $y = \frac{3x^2 + x - 1}{x - 1}$

m+n; **NO HORIZONTAL ASYMPTOTE**

$x - 1 = 0$

$\boxed{x = 1}$ VA

$\begin{array}{r} 3 \ 1 \ -1 \\ 3 \ 4 \ 4 \\ \hline 3 \ 4 \ 4 \end{array}$

$\therefore y = 3x + 4$

$\boxed{y = 3x + 4}$ LA

Determine dy/dx for the following:

9. $y = \sqrt{x^2} - 3\sqrt[3]{x} - 5$

$y = x^{1/2} - 3x^{1/3} - 5$

$\frac{dy}{dx} = \frac{1}{2}x^{-1/2} - x^{-2/3}$

$\boxed{\frac{dy}{dx} = \frac{1}{2}\sqrt{x} - \frac{1}{x^{2/3}}}$

10. $y = e^{\tan x}$

$\frac{dy}{dx} = \tan x \cdot e^{\tan x}$

$\frac{dy}{dx} = \sec^2 x \cdot e^{\tan x}$

$\boxed{\frac{dy}{dx} = e^{\tan x} \sec^2 x}$

11. $y = x^x$

$\ln y = x^x \ln x$

$\frac{dy}{dx} = x^x \left(\frac{1}{x} \right) + x \ln x$

$\frac{dy}{dx} = x^x (x + 2 \ln x) = x^x (1 + \ln(x^2))$

$\boxed{\frac{dy}{dx} = x^{x+1} (1 + \ln(x^2))}$

12. $x^4(y^2 - 2xy) = 0$

$3x^4 + 2y^2y' - [2y + 2xy'] = 0$

$3x^4 + 2y^2y' - 2y - 2xy' = 0$

$3y^2y' - 2xy' = 2y - 3x^4$

$y'(3y^2 - 2x) = 2y - 3x^4$

$\boxed{y' = \frac{2y - 3x^4}{3y^2 - 2x}}$

Differential Calculus Problems With Solution

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Flight Manual of Motorglider GROB G 109". Issue March 1983. 3. Provision of: "Appendix for Avionic Equipment of Maintenance Manual of the Motorglider GROB. Technical Information - TM 817-22 flight and maintenance manual" considers additional equipment as well as comments and corrections in the flight and maintenance manual of the G 109. Datum. G 109 G 109B - GROB Aircraft Nov 14, 2014 — Page 6 and 7: MAINTENANCE MANUAL GROB G 109 4a Re; Page 8 and 9: REPAIR INSTRUCTIONS GROB G 109 3 Gl; Page 10 and 11: WARTUNGSHANDBUCH GROB G ... Product Placement in Hollywood Films: A History This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present. Product Placement in Hollywood Films This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present. Product Placement in Hollywood Films: A History This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present. Kerry Segrave. Product Placement in Hollywood Films by D Lancaster · 2005 · Cited by 4 — Segrave offers innumerable examples of how specialist placement agencies and other intermediaries have wheeled and dealed, cajoled and schmoozed in order to get ... Product Placement in Hollywood Films: A History (review) by D Lancaster · 2005 · Cited by 4 — Product Placement in Hollywood Films: A History (review). David Lancaster. Film & History: An Interdisciplinary Journal of Film and Television. Studies, Volume ... Product Placement in Hollywood Films: A History by G Sim · 2007 · Cited by 1 — Product Placement in Hollywood Films avoids that sort of nostalgia by way of a detached, methodical exposition that rarely attends to the films themselves. Of ... [PDF] Product Placement in Hollywood Films: A History ... Product Placement in Hollywood Films: A History. Description : This is the history of advertising in motion pictures from the slide ads of the s to the ... Product Placement in Hollywood Films: A History Jul 27, 2004 — This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present ... Product Placement In Hollywood Films - By Kerry Segrave ... Book Synopsis. This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present. Product Placement in Hollywood Films : A History Synopsis: This is the history of advertising in motion pictures from the slide ads of the 1890s to the common practice of product placement in the present.