Trabajo grupal de límites

7. $\displaystyle\lim_{n\to\infty}\left(\dfrac{2n^3+6n^2+3}{3n^3+5n-1}\right)$

$\displaystyle\lim_{n\to\infty}\left(\dfrac{\dfrac{2n^3}{n^3}+\dfrac{6n^2}{n^3}+\dfrac{3}{n^3}}{\dfrac{3n^3}{n^3}+\dfrac{5n}{n^3}-\dfrac{1}{n^3}}\right)$

$\dfrac{2+\dfrac{6n}{n}+\dfrac{3}{n^3}}{3+\dfrac{5}{n^2}-\dfrac{1}{n^3}}=\dfrac{2}{3}$

9. $\displaystyle\lim_{x\to\infty}\left[\dfrac{(2x+1)^4+(3x^2-1)+2}{(x^4+1)+(x+2)^4}\right]$

$\displaystyle\lim_{x\to\infty}\left[\dfrac{\dfrac{(2x+1)^4}{x^4}+\dfrac{(3x^2-1)^2}{x^4}+\dfrac{2}{x}}{\dfrac{(x^4+1)}{x^4}+\dfrac{(x+2)^4}{x^4}}\right]$

$\dfrac{\left(\dfrac{2x+1}{x}\right)^4+\dfrac{(3x^2-1)^2}{x^4}}{\dfrac{x^4}{x^4}+\dfrac{1}{x^4}+\left(\dfrac{x+2}{x}\right)^4}$

$\dfrac{\left(\dfrac{2x}{x}+\dfrac{1}{x}\right)^4+\dfrac{(3x^2-1)^2}{x^4}}{1+\left(\dfrac{x}{x}+\dfrac{2}{x}\right)^4}$

$\dfrac{2^4+\left(\dfrac{3x^2-1}{x^2}\right)^2}{2}$

$\dfrac{16+\left(\dfrac{3x^2}{x^2}-\dfrac{1}{x^2}\right)^2}{2}$

$\dfrac{16+9}{2}=\dfrac{25}{2}$

1,4,5 / Diapo 15, Diapo 16

5) $\lim\limits_{x\to\infty}\left[\dfrac{\sqrt[3]{8x^3+1}}{\sqrt[4]{16x^4-2}} - \dfrac{1}{+3}\right]$

$\lim\limits_{x\to\infty} \dfrac{\dfrac{\sqrt[3]{8x^3+1}}{\sqrt[3]{x^3}} - 1}{\dfrac{\sqrt[4]{16x^4-2}}{\sqrt[4]{x^4}} + 3}$

$\lim\limits_{x\to\infty} \dfrac{\dfrac{\sqrt[3]{8x^3+1}}{\sqrt[3]{x^3}} - \dfrac{1}{\sqrt[3]{x^3}}}{\dfrac{\sqrt[4]{16x^4-2}}{\sqrt[4]{x^4}} + \dfrac{3}{\sqrt[4]{x^4}}}$

$\dfrac{\sqrt[3]{8x^3/x^3 + 1/x^3}}{\sqrt[4]{16x^4/x^4 + 1/x^4}}$

$\dfrac{\sqrt[3]{8}}{\sqrt[4]{16}}$

$2/2$

$\boxed{1}$

Diapo 16 :

1) $\lim\limits_{a\to\infty}\left(1 + 1/a\right)^{2a}$ ~~scribbled out~~

$\left(1 + 2/2a\right)^{2a}$

$\boxed{e^2}$

2) $\lim\limits_{a\to\infty}\left(1 + 1/a-1\right)^{(a-1)}$

$\boxed{e}$

3) $\lim\limits_{a \to \infty} (1 + 3/x)^x$

$(1 + \dfrac{1/x}{3})^{x/3 \cdot 3}$

$((1 + \dfrac{1/x}{3})^{x/3})^3$

$\boxed{e^3}$

4) $\lim\limits_{a \to \infty} (1 + 2/x)^{5x}$

$(1 + \dfrac{1/x}{2})^{x/2 \cdot 2 \cdot 5}$

$((1 + \dfrac{1/x}{2})^{x/2})^{10}$

$\boxed{e^{10}}$