30 06.2020г.

Консультация по математике.

Здравствуйте!

Сегодня мы повторяем производную

№1 Найти производную функции

а) $f\left(x\right)=7x+5$

$$f^{'}\left(x\right)=7$$

б) $f\left(x\right)=4x^{-5}$

$$f^{'}\left(x\right)=(4x^{-5})^{'}=4\left(-5\right)x^{-6}=-\frac{20}{x^{6}}$$

в) $f\left(x\right)=3x^{-\frac{4}{5}}$

$$f^{'}\left(x\right)=\left(3x^{-\frac{4}{5}}\right)^{'}=3\left(-\frac{4}{5}\right)x^{-\frac{4}{5}-1}=-\frac{12}{5}x^{-\frac{9}{4}}$$

г) $f\left(x\right)=12\sqrt[4]{x^{3}}$

$$f^{'}\left(x\right)=\left(12x^{\frac{3}{4}}\right)^{'}=12∙\left(\frac{3}{4}\right)x^{\frac{3}{4}-1}=9x^{-\frac{1}{4}}=\frac{9}{\sqrt[4]{x}}$$

д)$ f\left(x\right)=\frac{8}{\sqrt[4]{x^{3}}}$

$$f^{'}\left(x\right)=\left(\frac{8}{\sqrt[4]{x^{3}}}\right)^{'}=\left(8∙x^{-\frac{3}{4}}\right)^{'}=8∙\left(-\frac{3}{4}\right)∙x^{-\frac{3}{4}-1}=-6x^{-\frac{7}{4}}=-\frac{6}{\sqrt[4]{x^{7}}}$$

№2 Найти производную функции

а) $f\left(x\right)=x^{4}+3x^{7}$

$$f^{'}\left(x\right)=4x^{3}+21x^{6}$$

б) $f\left(x\right)=\left(x^{3}-2\right)∙\left(5x+2\right)$

I способ:

$$f^{'}\left(x\right)=\left(x^{3}-2\right)^{'}∙\left(5x+2\right)+\left(x^{3}-2\right)∙\left(5x+2\right)^{'}=3x^{2}∙\left(5x+2\right)+\left(x^{3}-2\right)∙5=15x^{3}+6x^{2}+5x^{3}-10=20x^{3}+6x^{2}-10$$

II способ:

$$f\left(x\right)=\left(x^{3}-2\right)∙\left(5x+2\right)$$

$$f\left(x\right)=5x^{4}+2x^{3}-10x-4$$

$$f^{'}\left(x\right)=20x^{3}+6x^{2}-10$$

в) $f\left(x\right)=\frac{x^{5}}{x^{3}+1}$

$$f^{'}\left(x\right)=\frac{\left(x^{5}\right)^{'}∙\left(x^{3}+1\right)-x^{5}∙\left(x^{3}+1\right)^{'}}{\left(x^{3}+1\right)^{2}}=\frac{5x^{4}∙\left(x^{3}+1\right)-x^{5}∙3x^{2}}{\left(x^{3}+1\right)^{2}}=\frac{5x^{7}+5x^{4}-3x^{7}}{\left(x^{3}+1\right)^{2}}=\frac{2x^{7}+5x^{4}}{\left(x^{3}+1\right)^{2}}$$

А теперь напишем тест и проверим ответы :

|  |
| --- |
|  |
| **1** | **Часть 1**https://alexlarin.net/ege/matem/2/16.gif |
| **2** | https://alexlarin.net/ege/matem/3/4.gif |
| **3** | https://alexlarin.net/ege/matem/4/5.gif |
| **4** | https://alexlarin.net/ege/matem/11/2.gif |
| **5** | https://alexlarin.net/ege/matem/6/11.gif |
| **6** | https://alexlarin.net/ege/matem/7/37.gif |
| **7** | https://alexlarin.net/ege/matem/9/8.gif |
| **8** | https://alexlarin.net/ege/matem/12/10.gif |
|    **9** | **Часть 2**https://alexlarin.net/ege/matem/8/4.gif |
| **10** | https://alexlarin.net/ege/matem/13/14.gif |
| **11** | https://alexlarin.net/ege/matem/14/8.gif |
| **12** | https://alexlarin.net/ege/matem/15/1.gif |
| **13** | https://alexlarin.net/ege/matem/16/105.png |
| **14** | https://alexlarin.net/ege/matem/17/95.png |
| **15** | https://alexlarin.net/ege/matem/18/110.png |
| **16** | https://alexlarin.net/ege/matem/19/54.png |
| **17** |  https://alexlarin.net/ege/matem/22/130.png |
| **18** | https://alexlarin.net/ege/matem/20/12.gif |
| **19** | https://alexlarin.net/ege/matem/21/1.gif  |
|

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | https://alexlarin.net/ege/matem/2/16o.gif | 7 | https://alexlarin.net/ege/matem/9/8o.gif |
| 2 | https://alexlarin.net/ege/matem/3/4o.gif | 8 | https://alexlarin.net/ege/matem/12/10o.gif |
| 3 | https://alexlarin.net/ege/matem/4/5o.gif | 9 | https://alexlarin.net/ege/matem/8/4o.gif |
| 4 | https://alexlarin.net/ege/matem/11/2o.gif | 10 | https://alexlarin.net/ege/matem/13/14o.gif |
| 5 | https://alexlarin.net/ege/matem/6/11o.gif | 11 | https://alexlarin.net/ege/matem/14/8o.gif |
| 6 | https://alexlarin.net/ege/matem/7/37o.gif | 12 | https://alexlarin.net/ege/matem/15/1o.gif |
| 13 | https://alexlarin.net/ege/matem/16/105o.png |
| 14 | https://alexlarin.net/ege/matem/17/95o.png |
| 15 | https://alexlarin.net/ege/matem/18/110o.png |
| 16 | https://alexlarin.net/ege/matem/19/54o.png |
| 17 | https://alexlarin.net/ege/matem/22/130o.png |

 |

Решение 13-19 заданий высылаем на электронную почту

IvchenkoAI68@yandex.ru