*1 ВАРИАНТ*

*1.Найдите производную функции:* $f\left(x\right)=2x^{8}-3x^{5}+2x$

|  |  |  |
| --- | --- | --- |
| 1. $16x^{7}-15x^{4}+2x$
 | 1. $16x^{7}-15x^{4}$
 | 1. $16x^{7}-15x^{4}+2$
 |

*2.Найдите производную функции:* $f\left(x\right)=x^{2}(x^{3}-5)$

|  |  |  |
| --- | --- | --- |
| 1. $5x^{4}-10$
 | 1. $5x^{4}-10x$
 | 1. $4x^{4}-10$
 |

*3.Вычислите значение производной функции f в данной точке, если* $f\left(x\right)=4x^{3}-5x $*, при x=1*

|  |  |  |
| --- | --- | --- |
| 1. $10$
 | 1. $7$
 | 1. $-1$
 |

*4. Решите неравенство*$ f^{'}(x)\geq 0$ *, если* $f\left(x\right)=12x^{2}-48x-4$

|  |  |  |
| --- | --- | --- |
| 1. $\left[-2;\right.\left.+\infty \right)$
 | 1. $(-2;+\infty )$
 | 1. $\left[2;+\infty )\right.$
 |

*5. Решите уравнение* $f^{'}\left(x\right)=0$*, если* $f\left(x\right)=\frac{1}{3}x^{3}-4x^{2}+12x$

|  |  |  |
| --- | --- | --- |
| 1. $-2 и 6$
 | 1. $-2 и-6$
 | 1. $2 и 6$
 |

*2 ВАРИАНТ*

*1.Найдите производную функции:* $f\left(x\right)=4x^{6}-2x^{4}+5x$

|  |  |  |
| --- | --- | --- |
| 1. $24x^{5}-8x^{3}$
 | 1. $24x^{5}-8x^{3}+5$
 | 1. $24x^{5}-8x^{3}+5x$
 |

*2.Найдите производную функции:* $f\left(x\right)=x^{3}(x^{2}+4)$

|  |  |  |
| --- | --- | --- |
| 1. $5x^{4}+12x^{2}$
 | 1. $5x^{4}+3x^{2}$
 | 1. $5x^{4}+4x^{3}$
 |

*3.Вычислите значение производной функции f в данной точке, если* $f\left(x\right)=5x^{2}-12 $*, при x=-1*

|  |  |  |
| --- | --- | --- |
| 1. $-22$
 | 1. $-24$
 | 1. $20$
 |

*4. Решите неравенство*$ f^{'}(x)<0$ *, если* $f\left(x\right)=10x^{2}-40x+42$

|  |  |  |
| --- | --- | --- |
| 1. $\left[2;\right.\left.+\infty \right)$
 | 1. $(-\infty ;\left.2\right]$
 | 1. $(-\infty ;2)$
 |

*5. Решите уравнение* $f^{'}\left(x\right)=0$*, если* $f\left(x\right)=x^{3}-5x^{2}+3x$

|  |  |  |
| --- | --- | --- |
| 1. $-3 и-\frac{1}{3}$
 | 1. $\frac{1}{3} и 3$
 | 1. $-3 и \frac{1}{3}$
 |

*3 ВАРИАНТ*

*1.Найдите производную функции:* $f\left(x\right)=x^{5}(x^{3}+2x)$

|  |  |  |
| --- | --- | --- |
| 1. $x^{7}+12x$
 | 1. $5x^{4}\*x^{2}$
 | 1. $8x^{7}+12x^{5}$
 |

*2. .Вычислите значение производной функции f в данной точке, если* $f\left(x\right)=x^{3}(x^{2}-1)$*, при x=1*

|  |  |  |
| --- | --- | --- |
| 1. $2$
 | 1. $8$
 | 1. $-8$
 |

*3. Решите уравнение* $f^{'}\left(x\right)=0$*, если* $f\left(x\right)=8x^{2}-16x+8$

|  |  |  |
| --- | --- | --- |
| 1. $2$
 | 1. $1$
 | 1. $0$
 |

*4. Решите неравенство*$ f^{'}(x)>0$ *, если* $f\left(x\right)=5x^{2}+42x$

|  |  |  |
| --- | --- | --- |
| 1. $(-\infty ;\left.5\right]$
 | 1. $(5;+\infty )$
 | 1. $(-4.2;+\infty )$
 |

*5. Решите неравенство*$ f^{'}(x)\leq 0$ *, если* $f\left(x\right)=\frac{1}{3}x^{3}-4x^{2}+12x$

|  |  |  |
| --- | --- | --- |
| 1. $\left[2;6\right]$
 | 1. $(1;6)$
 | 1. $\left[-1;-6\right]$
 |