2016

601 ; ____________ **A**

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6 **4** **24**

1 $f(x)=\begin{cases}\dfrac{1+e^{\frac{1}{x}}}{1-e^{\frac{1}{x}}}, x\neq 0,\\ 1, \quad x=0,\end{cases}$ $x=0$ $f(x)$.

A B C D

2 $f(x)$ $g(x)$ $(-\infty,+\infty)$ $f(x)<g(x)$.

A $f(-x)>g(-x)$ B $f'(x)<g'(x)$

C $\lim\limits_{x\to x_0} f(x)<\lim\limits_{x\to x_0} g(x)$ D $\int_0^x f(t)dt<\int_0^x g(t)dt$

3 $(1,3,-4)$ $3x+y-2z=0$.

A $(5,-1,0)$ B $(5,1,0)$ C $(-5,-1,0)$ D $(-5,1,0)$

4 $f'(x_0)=f''(x_0)=0$ $f'''(x_0)>0$

A $f(x_0)$ $f(x)$ (B) $f(x_0)$ $f(x)$

(C) $f'(x_0)$ $f'(x)$ (D) $f'(x_0)$ $f'(x)$

5 $f(x,y)$ $\int_0^{\frac{\pi}{4}}d\theta\int_0^1 f(r\cos\theta, r\sin\theta)rdr$

A $\int_0^{\frac{\sqrt{2}}{2}}dx\int_x^{\sqrt{1-x^2}} f(x,y)dy$ B $\int_0^{\frac{\sqrt{2}}{2}}dx\int_0^{\sqrt{1-x^2}} f(x,y)dy$

C $\int_0^{\frac{\sqrt{2}}{2}}dy\int_y^{\sqrt{1-y^2}} f(x,y)dx$ D $\int_0^{\frac{\sqrt{2}}{2}}dy\int_0^{\sqrt{1-y^2}} f(x,y)dx$

6 $f(x,y)$ (0,0) $\lim\limits_{\substack{x\to 0\\ y\to 0}} \frac{f(x,y)-f(0,0)}{x^2+1-x\sin y-\cos^2 y}=-3$ $f(x,y)$

(0,0)

(A) (B)

(C) (D)

6 **4** **24**

1 $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}}(x^3+\sin^2 x)\cos^2 x dx=$________________.

2 $y^2=x^2(a^2-x^2)\ (a>0)$ oy

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3 xoy $\frac{x-2}{3}=\frac{y+1}{-2}=\frac{z-5}{1}$ ____________.

4 $u=\ln(x+\sqrt{y^2+z^2})$ $A(1,0,1)$ A $B(3,-2,2)$ ______.

5 $f(x,y)$ $f(x,2x^2-3x+4)=x$ $f_x(1,3)=2$ $f_y(1,3)=$____.

6 $f(u,v)$ $z=f(\frac{y}{x},\frac{x}{y})$, $x\frac{\partial z}{\partial x}+y\frac{\partial z}{\partial y}=$___________ .

10 $\lim\limits_{x\to+\infty}\frac{\int_1^x\left[t^2\left(e^{\frac{1}{t}}-1\right)-t\right]dt}{x^2\ln(1+\frac{1}{x})}$

10 $f(0)=0$ $f'(x)$ $(0,+\infty)$ $g(x)=\frac{f(x)}{x}$ $(0,+\infty)$

14 $\varphi(x)$ $f(x)$

$$f(x)=\begin{cases}\dfrac{\int_0^x[(t-1)\int_0^{t^2}\varphi(u)du]dt}{\ln(1+x^2)}, & x\neq 0,\\ 0, & x=0.\end{cases}$$

$f(x)$ $x=0$.

12 $f(x)$ $f(x+y)=f(x)e^{y}+f(y)e^{x}, x,y\in(-\infty,+\infty)$ $f'(0)$

$a\neq 0$ $f'(x)$ $x\in(-\infty,+\infty)$ $f(x)$.

12 $x>0, t>0$ $f(x)$

$$\int_1^{xt} f(u)du = t\int_1^{x} f(u)du + x\int_1^{t} f(u)du$$

$f(x)$ $[0,+\infty)$ $f(1)=7$ $f(x)$

10 $f(x,y)=\begin{cases}\dfrac{\sqrt{a+x^2y^2}-1}{x^2+y^2}, & (x,y)\neq(0,0),\\ 0, & (x,y)=(0,0)\end{cases}$ $a>0$ $(0,0)$

10 A' $f(x)$ $f(x)=e^{2x}+\int_0^x tf(x-t)dt$ $f(x)$.

12 $u=f(x,z)$ $z=z(x,y)$ $z=x+y\varphi(z)$