1. Линейные дифференциальные уравнения в частных производных

1.1. Уравнение вида $f(x,y)\dfrac{\partial w}{\partial x}+g(x,y)\dfrac{\partial w}{\partial y}=0$

1. $\dfrac{\partial w}{\partial x}+[f(x)y+g(x)]\dfrac{\partial w}{\partial y}=0.$

2. $\dfrac{\partial w}{\partial x}+[f(x)y+g(x)y^k]\dfrac{\partial w}{\partial y}=0.$

3. $\dfrac{\partial w}{\partial x}+[f(x)e^{\lambda y}+g(x)]\dfrac{\partial w}{\partial y}=0.$

4. $f(x)\dfrac{\partial w}{\partial x}+g(y)\dfrac{\partial w}{\partial y}=0.$

5. $[f(y)+amx^ny^{m-1}]\dfrac{\partial w}{\partial x}-[g(x)+anx^{n-1}y^m]\dfrac{\partial w}{\partial y}=0.$

6. $[e^{\alpha x}f(y)+c\beta]\dfrac{\partial w}{\partial x}-[e^{\beta y}g(x)+c\alpha]\dfrac{\partial w}{\partial y}=0.$

7. $\dfrac{\partial w}{\partial x}+f(ax+by+c)\dfrac{\partial w}{\partial y}=0.$

8. $\dfrac{\partial w}{\partial x}+f\left(\dfrac{y}{x}\right)\dfrac{\partial w}{\partial y}=0.$

9. $x\dfrac{\partial w}{\partial x}+yf(x^ny^m)\dfrac{\partial w}{\partial y}=0.$

10. $\dfrac{\partial w}{\partial x}+yf(e^{\alpha x}y^m)\dfrac{\partial w}{\partial y}=0.$

11. $x\dfrac{\partial w}{\partial x}+f(x^ne^{\alpha y})\dfrac{\partial w}{\partial y}=0.$

1.2. Уравнения вида $f(x,y)\dfrac{\partial w}{\partial x}+g(x,y)\dfrac{\partial w}{\partial y}=h(x,y)$

1. $a\dfrac{\partial w}{\partial x}+b\dfrac{\partial w}{\partial y}=f(x).$

2. $\dfrac{\partial w}{\partial x}+a\dfrac{\partial w}{\partial y}=f(x)y^k.$

3. $\dfrac{\partial w}{\partial x}+a\dfrac{\partial w}{\partial y}=f(x)e^{\lambda y}.$

4. $a\dfrac{\partial w}{\partial x}+b\dfrac{\partial w}{\partial y}=f(x)+g(y).$

5. $\dfrac{\partial w}{\partial x} + a\dfrac{\partial w}{\partial y} = f(x)g(y)$.

6. $\dfrac{\partial w}{\partial x} + a\dfrac{\partial w}{\partial y} = f(x,y)$.

7. $\dfrac{\partial w}{\partial x} + [ay + f(x)]\dfrac{\partial w}{\partial y} = g(x)$.

8. $\dfrac{\partial w}{\partial x} + [ay + f(x)]\dfrac{\partial w}{\partial y} = g(x)h(y)$.

9. $\dfrac{\partial w}{\partial x} + [f(x)y + g(x)y^k]\dfrac{\partial w}{\partial y} = h(x)$.

10. $\dfrac{\partial w}{\partial x} + [f(x) + g(x)e^{\lambda y}]\dfrac{\partial w}{\partial y} = h(x)$.

11. $ax\dfrac{\partial w}{\partial x} + by\dfrac{\partial w}{\partial y} = f(x,y)$.

12. $f(x)\dfrac{\partial w}{\partial x} + g(y)\dfrac{\partial w}{\partial y} = h_1(x) + h_2(y)$.

13. $f(x)\dfrac{\partial w}{\partial x} + g(y)\dfrac{\partial w}{\partial y} = h(x,y)$.

14. $f(y)\dfrac{\partial w}{\partial x} + g(x)\dfrac{\partial w}{\partial y} = h(x,y)$.

1.3. Уравнения вида $f(x,y)\dfrac{\partial w}{\partial x} + g(x,y)\dfrac{\partial w}{\partial y} = h(x,y)w + r(x,y)$

1. $a\dfrac{\partial w}{\partial x} + b\dfrac{\partial w}{\partial y} = f(x)w$.

2. $a\dfrac{\partial w}{\partial x} + b\dfrac{\partial w}{\partial y} = f(x)w + g(x)$.

3. $a\dfrac{\partial w}{\partial x} + b\dfrac{\partial w}{\partial y} = [f(x) + g(y)]w$.

4. $\dfrac{\partial w}{\partial x} + a\dfrac{\partial w}{\partial y} = f(x,y)w$.

5. $\dfrac{\partial w}{\partial x} + a\dfrac{\partial w}{\partial y} = f(x,y)w + g(x,y)$.

6. $ax\dfrac{\partial w}{\partial x} + by\dfrac{\partial w}{\partial y} = f(x)w + g(x)$.

7. $ax\dfrac{\partial w}{\partial x} + by\dfrac{\partial w}{\partial y} = f(x,y)w$.

8. $x\dfrac{\partial w}{\partial x} + ay\dfrac{\partial w}{\partial y} = f(x,y)w + g(x,y)$.

9. $f(x)\dfrac{\partial w}{\partial x} + g(y)\dfrac{\partial w}{\partial y} = [h_1(x) + h_2(y)]w$.

10. $f_1(x)\dfrac{\partial w}{\partial x} + f_2(y)\dfrac{\partial w}{\partial y} = aw + g_1(x) + g_2(y).$

11. $f(x)\dfrac{\partial w}{\partial x} + g(y)\dfrac{\partial w}{\partial y} = h(x,y)w + r(x,y).$

12. $f(y)\dfrac{\partial w}{\partial x} + g(x)\dfrac{\partial w}{\partial y} = h(x,y)w + r(x,y).$