1. $\dfrac{dx}{2y-z} = \dfrac{dy}{y} = \dfrac{dz}{z}$.

2. $\dfrac{dx}{y} = \dfrac{dy}{x} = \dfrac{dz}{z}$.

3. $x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y} + z\dfrac{\partial u}{\partial z} = 0$.

4. $(x-z)\dfrac{\partial u}{\partial x} + (y-z)\dfrac{\partial u}{\partial y} + 2z\dfrac{\partial u}{\partial z} = 0$.

5. $\dfrac{dx}{y+z} = \dfrac{dy}{x+z} = \dfrac{dz}{x+y}$.

6. $e^x\dfrac{\partial z}{\partial x} + y^2\dfrac{\partial z}{\partial y} = ye^x$.

7. $2x\dfrac{\partial z}{\partial x} + (y-x)\dfrac{\partial z}{\partial y} - x^2 = 0$.

8. $xy\dfrac{\partial z}{\partial x} - x^2\dfrac{\partial z}{\partial y} = yz$.

9. $x\dfrac{\partial z}{\partial x} - y\dfrac{\partial z}{\partial y} - z^2(x-3y);\ \ x-1,\ \ yz+1-0$.

10. $x\dfrac{\partial z}{\partial x} + y\dfrac{\partial z}{\partial y} = z-x^2-y^2;\ \ y = -2,\ \ z = x - x^2$.

11. $yz\dfrac{\partial z}{\partial x} + xz\dfrac{\partial z}{\partial y} = xy;\ \ x = a,\ \ y^2 + z^2 = a^2$.

12. $z\dfrac{\partial z}{\partial x} - xy\dfrac{\partial z}{\partial y} = 2xz;\ \ x+y = 2,\ \ yz = 1$.

13. $z\dfrac{\partial z}{\partial x} + (z^2 - x^2)\dfrac{\partial z}{\partial y} + x = 0;\ \ y = x^2,\ \ z = 2x$.

15. $x\frac{\partial z}{\partial x} + (xz+y)\frac{\partial z}{\partial y} = z;\quad x+y=2z,\ xz=1.$

16. $(x-z)\frac{\partial z}{\partial x} + (y-z)\frac{\partial z}{\partial y} = 2z;\quad x-y=2,\ z+2x=1.$

17. $xy^3\frac{\partial z}{\partial x} + x^2z^2\frac{\partial z}{\partial y} = y^3z;\quad x=-z^3,\ y=z^2.$

18. $(y+2z^2)\frac{\partial z}{\partial x} - 2x^2z\frac{\partial z}{\partial y} = x^2;\quad x=z,\ y=x^2.$

19. $\dfrac{dx}{z} = \dfrac{dy}{xz} = \dfrac{dz}{y}.$

20. $\dfrac{dx}{z^2-y^2} = \dfrac{dy}{z} = -\dfrac{dz}{y}.$

21. $\dfrac{dx}{x} = \dfrac{dy}{y} = \dfrac{dz}{xy+z}.$

22. $\displaystyle\int \ln x\,dx.$

23. $\displaystyle\int \frac{x^2+x^2+1}{x-1}\,dx.$

24. $\displaystyle\int \frac{x\,dx}{2x^2+3}.$

25. $\displaystyle\int x(2x+5)^{10}\,dx.$

26. $\displaystyle\int \frac{1+x}{1+\sqrt{x}}\,dx.$

27. $\displaystyle\int x\sin x\,dx.$

28. $\displaystyle\int x\arcsin x\,dx.$

29. $\displaystyle\int \ln^2 x\,dx.$

30. $\displaystyle\int \frac{\sqrt{x^2+1}}{x}\,dx.$

31. $\displaystyle\int \frac{x^3\,dx}{\sqrt{2-x^2}}.$

32. $\displaystyle\int \frac{\sqrt{x^2-a^3}}{x}\,dx.$

33. $\displaystyle\int \sqrt{1-x}\,dx.$

34. $\displaystyle\int x(1-x)^{10}\,dx.$

35. $\displaystyle\int \sin^4 x\,dx.$

36. $\displaystyle\int \operatorname{tg}^3 x\,dx.$

37. $\displaystyle\int \frac{dx}{\sin x\cos^2 x}.$

38. $\displaystyle\int \frac{x^5}{\sqrt{1-x^2}}\,dx.$

39. $\displaystyle\int x^{\frac{1}{7}}(2x+3)^{\frac{1}{3}}\,dx.$

40. $\displaystyle\int \frac{dx}{x^2\sqrt{(1+x^2)^3}}.$

41. $\displaystyle\int x^{\frac{1}{2}}(1+x^{\frac{1}{3}})^{-2}\,dx.$

42. $\displaystyle\int x^5(1-x^2)^{-\frac{1}{2}}\,dx.$

43. $\displaystyle\int_{0}^{-3} \frac{dx}{\sqrt{25+3x}}.$

44. $\displaystyle\int x\cdot 7^{x^2}\,dx.$

45. $\displaystyle\int_{0}^{1} \frac{dx}{x^2+4x+5}.$

46. $\displaystyle\int \frac{dx}{(x-1)(x+2)(x+3)}.$

47. $\displaystyle\int_{3}^{4} \frac{dx}{x^2-3x+2}.$

48. $\displaystyle\int_{0}^{\frac{\pi}{2}} \frac{dx}{\sqrt{1-x^4}}.$

49. $\displaystyle\int_{0}^{\frac{\pi}{2}} x\cos x\,dx.$

50. $\displaystyle\int_{1}^{e} \ln x\,dx.$