

Знайти загальний розв'язок диференціальних рівнянь.

Варіант	а)	б)	в)
1.	$x + xy + y'(y + xy) = 0$	$y' = \frac{y}{x} + \cos \frac{y}{x}$	$xy' + y - x - 1 = 0$
2.	$\cos^2 y dx + (x^2 + 1)dy = 0$	$y' = \frac{y}{x} + \sin \frac{y}{x}$	$x^2 y' = 2xy + 3$
3.	$\sqrt{y} dx + x^2 dy = 0$	$y' = \frac{x + y}{x}$	$xy' - y = -\ln x$
4.	$y' = \frac{x \sin x}{\cos^4 y}$	$y' = \frac{y^2}{x^2} - \frac{y}{x}$	$2(xy' + y) = xy^2$
5.	$2x^2 yy' + y^2 = 2$	$y' = \frac{2yx + y^2}{x^2}$	$2xy' + y = \frac{1}{y^3}$
6.	$x\sqrt{1 - y^2} dx + \sqrt{1 - x^2} dy = 0$	$y' = \frac{y}{x + y}$	$y' = \frac{1}{2x - y^2}$
7.	$\sqrt{y} dx - dy = 0$	$y' = \frac{2x + 2y}{x}$	$y' - \frac{xy}{x^2 - 9} = x^3$
8.	$2xyy' = y^2 + 1$	$xy' = y\sqrt{y^2 - x^2}$	$y' + xy = x^2$
9.	$xy' = ctgy$	$(x^2 + 2xy)dx + xydy = 0$	$y' - y = e^{2x}$
10.	$\sin x \sin y dx + \cos x \cos y dy = 0$	$xy + y^2 = (2x^2 + xy)y'$	$y' + y \operatorname{tg} x = \cos^2 x$
11.	$(1 + e^x)yy' = e^x$	$xy' \cdot \ln \frac{y}{x} = x + y \ln \frac{y}{x}$	$2y' - 6y + x^2 = 0$
12.	$2\sqrt{xy}' = y$	$xyy' = y^2 + 2x^2$	$xy' + 2y = 1$
13.	$x\sqrt{1 + y^2} + y\sqrt{1 + x^2} y' = 0$	$y' = 4 + \frac{y}{x} + \left(\frac{y}{x}\right)^2$	$y' + \frac{y}{x^2 + x} = \frac{x}{1 + x}$
14.	$(1 + x^3)y' = 3x^2 y$	$(x^2 + y^2)dx - xydx = 0$	$y' + 2y = x^2 + 2x$
15.	$y' = e^{2x-4y}$	$y' = \frac{x + y}{x - y}$	$y' - \frac{y}{x} = 2 \ln x + 1$
16.	$x^2 y' + y = 0$	$xy' = 2(y - \sqrt{xy})$	$xy' - y = x$
17.	$3^{x-y} dx - 4^{x+y} dy = 0$	$3xy' = 3y - xe^{\frac{y}{x}}$	$xy' + y = e^x$

18.	$x^3 y' = 2y$	$y' = e^{-\frac{y}{x}} + \frac{y}{x}$	$y' + \frac{y}{x^2} = e^{\frac{1}{x}}$
19.	$y' + y \sin 2x = 0$	$y = x(y' + \sqrt[7]{e^7})$	$y' + \frac{xy}{x^2 + 1} = 1$
20.	$1 + y^2 = y' \sqrt{x}$	$xy' = y + \sqrt{x^2 + y^2}$	$y' + \frac{2xy}{x^2 - 1} = \frac{1}{x^4 - 1}$
21.	$y' = x4^{x+y}$	$xy' \cos \frac{y}{x} = y \cos \frac{y}{x} - x$	$y' + \frac{3x^2 y}{x^3 + 1} = 1$
22.	$y' = 2yctgx$	$y - \sqrt{x^2 + y^2} = xy'$	$xy' + 3y = x^{-3}$
23.	$(1 + x)yy' = e^{-y^2}$	$xy' = y(1 + \ln \frac{y}{x})$	$y' + \frac{3x^2 y}{x^3 + 8} = 1$
24.	$(1 + x^2)dy = \sqrt{1 - y^2} dx$	$yy' + 2\sqrt{xy} = x$	$x^2 y' = y - 3$
25.	$y'tgx = y$	$xy' - y = xtg \frac{y}{x}$	$y' - tgxy = \frac{1}{\cos x}$
26.	$(1 + e^x)yy' = e^{-x}$	$xy' - y \cos \ln \frac{y}{x} = 0$	$y' - 2y = e^{2x}$
27.	$y' \sin x = y \ln y$	$xy' = xe^{\frac{y}{x}} + y$	$y' = ytgx + \cos x$
28.	$y' = 2\sqrt{y} \ln x$	$y' = \frac{y^2}{x^2} + \frac{y}{x}$	$y' + 4y = x^2 + 2x$
29.	$y' = \frac{1 + y^2}{1 + x^2}$	$y' = \frac{y}{x} + \sin \frac{2y}{x}$	$xy' + y = xy^2$
30.	$xydx + (x + 1)dy = 0$	$xy' = y(4 + \ln x - \ln y)$	$y' + 2y = e^x$