Savollar va javoblar Qiyinlilik darajasi Shablondagi nomeri Ta'lim natijalari Tematik ta'lim natijalari

Differensial tenglamaning xususiy yechimini toping

$3y' + y = 0 \quad y(0) = 2$

1 1

$y = 2e^{-\frac{x}{3}}$

$y = 2 + x^3$

$y = 2e^{-3x}$

$y = 2e^{\frac{x}{3}}$

Differensial tenglamaning xususiy yechimini toping.

$3y' - y = 0 \quad y(0) = 2$

1 1

$y = 2e^{\frac{x}{3}}$

$y = 2 + x^3$

$y = 2e^{-3x}$

$y = 2e^{-\frac{x}{3}}$

Differensial tenglamaning xususiy yechimini toping

$\sqrt{y}dx - \sqrt{x}dy = 0,\ y(0) = 1$

1 1

$y = (\sqrt{x} + 1)^2$

$y = 2\sqrt{x} + 1$

$y=(x-1)^2$

$y=\frac{x+3}{3}$

Differensial tenglamaning xususiy yechimini toping

$y'=4\sqrt{y},\quad y(0)=9$

1 1

$y=(2x+3)^2$

$y=(3x+2)^2$

$y=2x+9$

$y=\frac{1}{9}(2x+9)^2$

Differensial tenglamaning xususiy yechimini toping

$y'=4\sqrt{y},\quad y(0)=4$

1 1

$y=4(x+1)^2$

$y=(3x+2)^2$

$y=(x^2+2)^2$

$y=4(2x+1)^2$

Differensial tenglamaning xususiy yechimini toping

$y'=4x\sqrt{y},\quad y(0)=9$

1 1

$y=(x^2+3)^2$

$y = 9(x^2 + 1)^2$

$y = (2x + 3)^2$

$y = (2x^2 + 3)^2$

Differensial tenglamaning xususiy yechimini toping

$y' = 4x\sqrt{y}, \quad y(0) = 1$

1 1

$y = (x^2 + 1)^2$

$y = (2x^2 + 1)^2$

$y = (2x + 1)^2$

$y = \frac{1}{9}(x^2 + 3)^2$

Differensial tenglamaning xususiy yechimini toping

$xy' - y \ln y = 0, \; y(1) = e^2$

1 1

$y = e^{2x}$

$y = x \cdot e^2$

$y = e^{x+1}$

$y = x \cdot e^{2x}$

Differensial tenglamaning xususiy yechimini toping

$y' = xy, \quad y(0) = 4$

1 1

$y = 4e^{\frac{x^2}{2}}$

$y = e^{x^2} + 3$

$y = 4e^{2x}$

$y = e^{x} + 3$

Differensial tenglamaning umumiy yechimini toping

$y' = 5^{x-y}$

1 1

$y = 1\log_5(C + 5^x)$

$y = 2\log_5(x + C)$

$y = 1\log_5 x + C$

$y = \log_5(x + 5^x) + C$

Differensial tenglamaning umumiy yechimini toping

$y' = 3^{x-y}$

1 1

$y = \log_3(C + 3^x)$

$y = 2\log_3(x + C)$

$y = 1\log_3 x + C$

$y = \log_3(x + 3^x) + C$

Differensial tenglamaning umumiy yechimini toping

$y' = \frac{y+1}{x+1}$

1 1

$y = -1 + C(x+1)$

$y = x + C$

$y = C(x+1)$

$y = 1 + C(x+1)$

Differensial tenglamaning umumiy yechimini toping

$y' + y = 5$

1 1

$y = 5 + Ce^{-x}$

$y = Ce^{-x} - 5$

$y = C(e^{-x} + 5x)$

$y = 5 + Ce^{x}$

Differensial tenglamaning xususiy yechimini toping

$\frac{dx}{4} + \frac{dy}{\sin x} = 0, \quad y(0) = -1$

1 1

$y = \frac{1}{4}\cos x - 1\frac{1}{4}$

$y = -\frac{1}{4}\cos x - \frac{3}{4}$

$y = \frac{1}{4}\sin x - 1$

$y = -\cos x$

Differensial tenglamaning xususiy yechimini toping

$\frac{dx}{4} + \frac{dy}{\sin x} = 0, \quad y(0) = 1$

1 1

$y = \frac{1}{4}\cos x + \frac{3}{4}$

$y = -\frac{1}{4}\cos x + 1\frac{1}{4}$

$y = \frac{1}{4}\sin x + 1$

$y = \cos x$

Differensial tenglamaning xususiy yechimini toping

$e^y y' + 1 = 0, \quad y(0) = \ln 2$

1 1

$y = \ln(2 - x)$

$y = \ln(2 + x)$

$y = \frac{1}{2}\ln(4 - x)$

$y = \frac{1}{2}\ln(4 + x)$

Differensial tenglamaning xususiy yechimini toping

$\frac{dx}{4} + \frac{dy}{\cos x} = 0, \quad y(0) = 1$

1 1

$y = -\frac{1}{4}\sin x + 1$

$y = \frac{1}{4}\sin x + 1$

$y = -\frac{1}{4}cosx + \frac{1}{4}$

$y = 1 - \sin x$

Differensial tenglamaning xususiy yechimini toping

$(1 - e^{2x})dx = e^x dy, \; y(0) = -1$

1 1

$y = 1 - e^{-x} - e^{x}$

$y = -1 + e^{-x} - e^{x}$

$y = -1 - e^{-x} + e^{x}$

$y = -1 + xe^{2x}$

Differensial tenglamaning xususiy yechimini toping

$(1 + e^{2x})dx = e^{x}dy,\ y(0) = -1$

1 1

$y = -1 - e^{-x} + e^{x}$

$y = -1 + e^{-x} - e^{x}$

$y = 1 - e^{-x} - e^{x}$

$y = -1 + xe^{2x}$

Differensial tenglamaning xususiy yechimini toping

$(1 + e^{2x})dx = e^{x}dy,\ y(0) = 1$

1 1

$y = 1 - e^{-x} + e^{x}$

$y = 1 + e^{-x} - e^{x}$

$y = -1 + e^{-x} + e^{x}$

$y = 1 + xe^{2x}$

Erkli o‘zgaruvchi, noma’lum funksiya va uning hosilalari yoki differensiallarini bog‘lovchi tenglamaga … deyiladi.

1 2

differensial tenglama

umumiy yechim

xususiy yechim

tartibi

Agar noma’lum funksiya faqat bitta o‘zgaruvchiga bog‘liq bo‘lsa, bunday differensial tenglamaga … differensial tenglama deyiladi

1 2

oddiy

tartibli

umumiy yechimli

xususiy yechimli

Agar noma’lum funksiya ikki yoki undan ortiq o‘zgaruvchiga bog‘liq bo‘lsa, bunday differensial tenglamaga … differensial tenglama deyiladi.

1 2

xususiy hosilali

oddiy

yuqori tartibli

o‘zgaruvchan

Differensial tenglamada qatnashgan hosilalarning eng yuqori tartibi tenglamaning … deyiladi.

1 2

tartibi

xususiy yechimi

chegarasi

umumiy yechimli

Birinchi tartibli differensial tenglamani to‘g‘ri tenglikka aylantiruvchi $y = \varphi(x, C)$

funksiyaga tenglamaning … deyiladi.

1 2

umumiy yechimi

hususiy yechimi

tartibi

chegarasi

Quyidagilardan qaysi biri birinchi tartibli differensial tenglama uchun Koshi masalasi?

1 2

$$\begin{cases} y' = f(x,y) \\ y\big|_{x=x_0} = y_0 \end{cases}$$

$$\begin{cases} y' = f(x,y) \\ y = \varphi(x) \end{cases}$$

$$\begin{cases} y' = f(x,y) \\ y(a) = A; y(b) = B \end{cases}$$

$$\begin{cases} y' = f(x,y) \\ a < x < b \end{cases}$$

Tenglamaning tipini aniqlang:

$y' = f_1(x) f_2(y)$

1 2

O‘zgaruvchilari ajraladigan

Chiziqli

Bir jinsli

Bernulli

Chiziqli differensial tenglamani qaysi usulda yechiladi?

1 2

Bernulli

Gauss

Kramer

Nyuton

Chiziqli differensial tenglamani qaysi usulda yechiladi?

1 2

Lagranj

Kramer

Gauss

Nyuton

$f(x,y)$ funksiya qachon k tartibli bir jinsli funksiya deyiladi?

1 2

$f(\lambda x,\lambda y)=\lambda^k f(x,y)$

$f(\lambda x,\lambda y)=\lambda f(x,y)$

$f(\lambda x,\lambda y)=k^{\lambda} f(x,y)$

$f(\lambda x,\lambda y)=(\lambda k) f(x,y)$

$y'+P(x)y=Q(x)$ tenglamanini yechishning Bernulli usulida qanday almashtirish bajariladi?

1 2

$y=uv$

$y=p'$

$y=\varphi(x)$

$y'=pp'$

$y'+P(x)y=Q(x)$ tenglamanini yechishning Lagranj usulida umumiy yechim … ko`rinishda izlanadi

1 2

$y=C(x)e^{-\int P(x)dx}$

$y = C(x)e^{\int P(x)dx}$

$y = C(x)e^{P(x)}$

$y = e^{-\int P(x)dx}$

Agar birinchi tartibli $y' = f(x, y)$ differensial tenglamaning o‘ng tomoni x va y ga nisbatan …bir jinsli funksiya bo‘lsa, bunday tenglama bir jinsli DT deyiladi.

1 2

nol o‘lchovli

chiziqli

uzluksiz

xususiy yechimli

Quyidagilarni qaysi biri 1-tartibli chiziqli differensial tenglamaning umumiy ko‘rinishi?

1 2

$y' + P(x)y = Q(x)$

$y' + P(x)y = Q(y)$

$y' + P(x)y = Q(x)y^n$

$y' + P(y)x = 0$

$y' = \frac{a_1x + b_1y + c_1}{a_2x + b_2y + c_2}$ tenglama qachon bir jinsli differensial tenglamaga keladi?

1 2

$\begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix} \neq 0$

$\begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix} = 0$

$$\begin{vmatrix} c_1 & b_1 \\ c_2 & b_2 \end{vmatrix} \neq 0$$

$$\begin{vmatrix} a_1 & c_1 \\ a_2 & c_2 \end{vmatrix} \neq 0$$

Ushbu $y' + P(x)y = 0$ tenglama … DT bo‘ladi.

1 2

chiziqli bir jinsli

Rikatti

to‘la differensial

Bernulli

Bernuli tenglamasini aniqlang.

1 2

$y' + P(x)y = Q(x)y^n$

$y' + P(x)y = Q(x)$

$y = xy' + \psi(y')$

$y = x\varphi(y') + \psi(y')$

Lagranj tenglamasini aniqlang

1 2

$y = x\varphi(y') + \psi(y')$

$y' + P(x)y = Q(x)y^n$

$y' + P(x)y = Q(x)$

$y = xy' + \psi(y')$

Klero tenglamasini aniqlang

1 2

$y = xy' + \psi(y')$

$y = x\varphi(y') + \psi(y')$

$y' + P(x)y = Q(x)y^n$

$y'+P(x)y=Q(x)$

Bernulli tenglamasi qaysi almashtirish yordamida chiziqliga keltiriladi?

1 2

$z=y^{-n+1}$,
$z'=(-n+1)y^{-n}y'$

$y=uv$

$y=e^{kx}$

$y=p'$, $y''=pp'$

Ushbu $y'=\frac{x+y+3}{x+2}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$\begin{cases}x=x_1-2\\y=y_1-1\end{cases}$

$\begin{cases}x=x_1+2\\y=y_1+1\end{cases}$

$\begin{cases}x=x_1+2\\y=y_1-1\end{cases}$

$\begin{cases}x=x_1-2\\y=y_1+1\end{cases}$

Ushbu $y'=\frac{2x+3y-1}{x+y}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$\begin{cases}x=x_1-1\\y=y_1+1\end{cases}$

$$\begin{cases} x = x_1 + 1 \\ y = y_1 - 1 \end{cases}$$

$$\begin{cases} x = x_1 - 1 \\ y = y_1 - 1 \end{cases}$$

$$\begin{cases} x = x_1 + 1 \\ y = y_1 + 1 \end{cases}$$

Quyidagilarni qaysi biri bir jinsli differnsial tenglamaga keltiriladigan tenglama?

1 3

$$y' = \frac{2x + y + 1}{2x + 3y - 1}$$

$$y' = \sin(x - y)$$

$$y' = \frac{5 - 4x - 2y}{3 + x + 2y}$$

$$y' = \frac{2y}{x^2 + 1}$$

Ushbu $y' = \frac{2x + y - 2}{x - 2}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$$\begin{cases} x = x_1 + 2 \\ y = y_1 - 2 \end{cases}$$

$$\begin{cases} x = x_1 + 2 \\ y = y_1 + 2 \end{cases}$$

$$\begin{cases} x = x_1 - 2 \\ y = y_1 - 2 \end{cases}$$

$$\begin{cases} x = x_1 - 2 \\ y = y_1 + 2 \end{cases}$$

Qaysi almashtirish ushbu $y' = \dfrac{x+y+1}{2x+2y}$ tenglamani o‘zgaruvchilari ajraladigan tenglamaga keltiradi?

1 3

$x + y + 1 = u$

$x + y + 1 = xu$

$y = ux - 1$

$y = ux + 1$

Ushbu $y' = \dfrac{x-2y+1}{y-1}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$$\begin{cases} x = x_1 + 1 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 - 1 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 + 1 \\ y = y_1 - 1 \end{cases}$$

$$\begin{cases} x = x_1 - 1 \\ y = y_1 - 1 \end{cases}$$

Ushbu $y' = \dfrac{x+y-3}{x-2y}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$$\begin{cases} x = x_1 + 2 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 - 2 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 + 2 \\ y = y_1 - 1 \end{cases}$$

$$\begin{cases} x = x_1 - 2 \\ y = y_1 - 1 \end{cases}$$

Quyidagilarni qaysi biri bir jinsli differnsial tenglamaga keltiriladigan tenglama?

1 3

$$y' = \frac{2x - y - 5}{x + 2y}$$

$$y' = \sin(x + y)$$

$$y' = \frac{2 - 3x - 3y}{3 + x + y}$$

$$y' = \frac{y}{x^2 + 1}$$

Ushbu $y' = \frac{x - 5y + 4}{x - y}$ tenglamani bir jinsliga keltirish uchun qanday almashtirish bajariladi?

1 3

$$\begin{cases} x = x_1 + 1 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 - 1 \\ y = y_1 + 1 \end{cases}$$

$$\begin{cases} x = x_1 + 1 \\ y = y_1 - 1 \end{cases}$$

$$\begin{cases} x = x_1 - 1 \\ y = y_1 - 1 \end{cases}$$

Qaysi almashtirish ushbu $y' = \dfrac{3x + 3y - 1}{x + y - 1}$ tenglamani o‘zgaruvchilari ajraladigan tenglamaga keltiradi?

1 3

$$x + y - 1 = u$$

$$x + y - 1 = xu$$

$$y = ux + 1$$

$$y = ux - 1$$

Ushbu $\begin{cases} x = x_1 + 1 \\ y = y_1 + 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x - 5y + 4}{x - y}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

$$y' = \frac{2 - 3x - 3y}{3 + x + y}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

Ushbu $\begin{cases} x = x_1 + 2 \\ y = y_1 + 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x + y - 3}{x - 2y}$$

$$y' = \frac{x - 5y + 4}{x - y}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

$$y' = \frac{2 - 3x - 3y}{3 + x + y}$$

Ushbu $\begin{cases} x = x_1 - 1 \\ y = y_1 - 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x + 2y + 3}{x - 2y - 1}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

$$y' = \frac{x - 5y + 4}{x - y}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

Ushbu $\begin{cases} x = x_1 + 2 \\ y = y_1 - 2 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{2x + y - 2}{x - 2}$$

$$y' = \frac{x + 2y + 3}{x - 2y - 1}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

Ushbu $\begin{cases} x = x_1 - 2 \\ y = y_1 + 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x + 2y}{x + y + 1}$$

$$y' = \frac{2x + y - 2}{x - 2}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

Ushbu $\begin{cases} x = x_1 + 2 \\ y = y_1 - 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{2x - y - 5}{x + 2y}$$

$$y' = \frac{x + 2y}{x + y + 1}$$

$$y' = \frac{2x + y - 2}{x - 2}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

Ushbu $\begin{cases} x = x_1 - 2 \\ y = y_1 + 3 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{2x + y + 1}{3x + 2y}$$

$$y' = \frac{x + 2y}{x + y + 1}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

$$y' = \frac{x + y - 1}{2x + y - 4}$$

Ushbu $\begin{cases} x = x_1 + 3 \\ y = y_1 - 2 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x + y - 1}{2x + y - 4}$$

$$y' = \frac{2x + y + 1}{3x + 2y}$$

$$y' = \frac{x + 2y}{x + y + 1}$$

$$y' = \frac{2x - y - 5}{x + 2y}$$

Ushbu $\begin{cases} x = x_1 + 2 \\ y = y_1 + 2 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{2x - y - 2}{x + y - 4}$$

$$y' = \frac{x + y - 1}{2x + y - 4}$$

$$y' = \frac{3x + y + 8}{x + 2y + 6}$$

$$y' = \frac{x + 2y}{x + y + 1}$$

Ushbu $\begin{cases} x = x_1 - 2 \\ y = y_1 - 1 \end{cases}$ almashtirish yordamida qaysi tenglama bir jinsliga keltiriladi?

1 3

$$y' = \frac{x + y + 3}{x + 2y + 4}$$

$$y' = \frac{x + y - 1}{2x + y - 4}$$

$$y' = \frac{3x + y + 8}{x + 2y + 6}$$

$$y' = \frac{x + y - 3}{x - 2y}$$

Asl funksiyaning tasvirini toping

$$e^{3t}cos5t$$

1 4

$$\frac{p-3}{(p-3)^2+5^2}$$

$$\frac{p-5}{(p-5)^2+2^2}$$

$$\frac{p-2}{(p-5)^2+2^2}$$

$$\frac{p-5}{(p-2)^2+5^2}$$

Asl funksiyaning tasvirini toping

$$t+e^{2t}sin5t.$$

1 4

$$\frac{1}{p^2}+\frac{5}{(p-2)^2+5^2}$$

$$\frac{p-2}{(p-2)^2+5^2}$$

$$\frac{1}{p}+\frac{p}{p^2+5^2}$$

$$\frac{1}{p^2}+\frac{p}{p^2+5^2}$$

Asl funksiyaning tasvirini toping

$$t+cos5t.$$

1 4

$$\frac{1}{p^2}+\frac{p}{p^2+5^2}$$

$$\frac{1}{p^2}+\frac{p-5}{(p-5)^2+2^2}$$

$$\frac{1}{p^2}+\frac{p-5}{(p-5)+2}$$

$$\frac{1}{p^2}+\frac{p-2}{(p-2)^5+2^5}$$

Asl funksiyaning tasvirini toping

$$t^3+2e^{-2t}+3t^2.$$

1 4

$$\frac{6}{p^4}+\frac{2}{p+2}+\frac{6}{p^3}$$

$$\frac{1}{p^4}+\frac{1}{p+2}+\frac{2}{p^3}$$

$$\frac{1}{p^4}+\frac{4}{p+2}+\frac{2}{p^3}$$

$$\frac{1}{p^4}+\frac{3}{p+2}+\frac{2}{p^3}$$

Asl funksiyaning tasvirini toping

$$t+3e^{-2t}+t^2$$

1 4

$$\frac{1}{p^2}+\frac{3}{p+2}+\frac{2}{p^3}$$

$$\frac{6}{p^4}+\frac{2}{p+2}+\frac{6}{p^3}$$

$$\frac{1}{p^4}+\frac{1}{p+2}+\frac{2}{p^3}$$

$$\frac{1}{p^2}+\frac{6}{p^4}+\frac{2}{p+2}$$

Asl funksiyaning tasvirini toping

$$e^t+3cos3t-sin8t.$$

1 4

$$\frac{1}{p-1}+\frac{3p}{p^2+9}-\frac{8}{p^2+64}$$

$$\frac{1}{p^2-1}+\frac{1}{p-1}-\frac{8}{p^3+64}$$

$$\frac{1}{p^2-1}+\frac{1}{p-1}-\frac{8}{p^3+8}$$

$$\frac{1}{p^4}+\frac{3}{p+2}-\frac{8}{p^3+16}$$

Asl funksiyaning tasvirini toping

$$t+2sin4t+cost.$$

1 4

$$\frac{1}{p^2}+\frac{8}{p^2+4^2}+\frac{p}{p^2+1^2}$$

$$\frac{1}{p^2}+\frac{4}{p^2+4^2}+\frac{p+1}{p^2+1^2}$$

$$\frac{1}{p^2}+\frac{8}{p^2+4^2}+\frac{p+1}{p^2+1^2}$$

$$\frac{1}{p^2}+\frac{8}{p^2+4^2}+\frac{p+2}{p^2+12^2}$$

Asl funksiyaning tasvirini toping

$$t^2 + t^2e^{2t}.$$

1 4

$$\frac{2}{p^3} + \frac{2}{(p-2)^3}$$

$$\frac{2}{p+2} + \frac{6}{p^3}$$

$$\frac{2}{p^3} + \frac{2}{(p+2)^3}$$

$$\frac{1}{p^4} + \frac{2}{p^2}$$

Asl funksiyaning tasvirini toping

$$e^{-2t} + 3t.$$

1 4

$$\frac{1}{p+2} + \frac{3}{p^2}$$

$$\frac{2}{p+2} + \frac{6}{p^3}$$

$$\frac{3}{p+3} + \frac{2}{p^3}$$

$$\frac{1}{p^4} + \frac{3}{p+2} + \frac{2}{p^3}$$

Asl funksiyaning tasvirini toping

$$t^3 + 2e^{-2t}sint.$$

1 4

$$\frac{6}{p^4} + \frac{2}{(p+2)^2+1^2}$$

$$\frac{6}{p^2}+\frac{2}{(p-2)^2+1^2}$$

$$\frac{2}{(p+2)^2+1^2}+\frac{2}{p^3}$$

$$\frac{3}{p+2}+\frac{2}{(p+2)^2+1^2}$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{1}{p^2-5p+6}$$

1 4

$$e^{3t}-e^{2t}$$

$$2e^{3t}-e^{5t}$$

$$e^{4t}-e^{3t}$$

$$\frac{e^{3t}-e^{2t}}{3}$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{1}{(p-3)(p-5)}+\frac{2}{p^2+4}$$

1 4

$$\frac{e^{5t}}{2}-\frac{e^{3t}}{2}+sin2t$$

$$e^{3t}-e^{5t}+sin2t$$

$$\frac{e^{5t}}{2}-\frac{e^{3t}}{2}+cos2t$$

$$\frac{e^{5t}}{2}+\frac{e^{3t}}{2}+sin2t$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{1}{p^2-5p+6}+\frac{p}{p^2+4}.$$

1 4

$$e^{3t}-e^{2t}+cos2t;$$

$$\frac{e^{5t}}{2}-\frac{e^{2t}}{2}+sin2t$$

$$\frac{e^{3t}-e^{2t}}{3}+cos2t$$

$$e^{4t}-e^{3t}+cos2t;$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{1}{(p-2)^2+1}.$$

1 4

$$e^{2t}sint$$

$$e^{t}cost$$

$$-e^{t}sin2t$$

$$te^{4t}+cost$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{p+4}{(p+4)^2+4}+\frac{2}{p-2}$$

1 4

$e^{-4t}cos2t + 2e^{2t}$

$e^{-4t}cos2t + sin2t;$

$2e^{3t} - e^{5t}cos2t;$

$e^{-4t}cos2t + 2e^{3t}$

Tasvirga qanday asl funksiya mos keladi

$\frac{p-2}{(p-2)^2+1}$.

1 4

$e^{2t}cos2t$

$e^{2t}sint$

$e^{2t}cos2t$

$\frac{e^{2t}}{2}sin2t$;

Tasvirga qanday asl funksiya mos keladi

$\frac{3}{p^2+9} - \frac{6}{p^4} + \frac{p}{p^2+4}$

1 4

$sin3t - t^3 + cos2t;$

$sin3t - cos2t + t^2;$

$cost - \frac{e^{4t}}{2} + sin3t$

$e^{3t} - t^2 + cos2t;$

Tasvirga qanday asl funksiya mos keladi

$$\frac{p-2}{(p-2)^2+9}+\frac{2}{p^3}-\frac{2}{p-6}.$$

1 4

$$e^{2t}cos3t+t^2-2e^{6t}$$

$$e^{2t}cos3t+t^4-2e^{6t};$$

$$-t^4+cos3t+2e^{6t}$$

$$e^{2t}cos3t+t^4-tsint$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{p^2-4}{(p^2+4)^2}.$$

1 4

$$tcos2t;$$

$$tsin2t;$$

$$tcost;$$

$$2tcos2t$$

Tasvirga qanday asl funksiya mos keladi

$$\frac{2p}{(p^2+1)^2}-\frac{2p}{p^2-16}.$$

1 4

$$tsint-2ch4t;$$

$$tcost+sint$$

$$sint-2ch4t$$

$tsint - sh2t;$

$F\left(x, y^{(k)}, y^{(k+1)}, \ldots, y^{(n)}\right) = 0$ tenglama tartibini pasaytirganda hosil bo`lgan tenglamaning tartibini aniqlang

1 5

$n - k$

n^2

k

$n - k^2$

$F\left(x, y^{(k)}, y^{(k+1)}, \ldots, y^{(n)}\right) = 0$ tenglamaning tartibini pasaytirish uchun qanday almashtirish bajariladi?

1 5

$z = y^{(k)}$, $z' = y^{(k+1)}$,…, $z^{(n-k)} = y^{(n)}$ almashtirish bajariladi

$z = y'$ almashtirish bajariladi

$z = y' + 1$ almashtirish bajariladi

$z^2 = y'$ almashtirish bajariladi

Agar n - tartibli differensial tenglamada … 1–darajada qatnashsa, bunday tenglama yuqori tartibli chiziqli differensial tenglama deyiladi.

1 5

noma’lum funksiya va uning hosilalari

noma’lum funksiya

noma’lum funksiyaning hosilalari

noma’lum funksiya qatnashmagan hadi

Agar differensial tenglamalar sistemasi ikki noma‘lumli normal sistema bo‘lsa, uning umumiy yechimining ko‘rinishini aniqlang.

1 5

$$\begin{cases} y = \varphi_1(x, C_1, C_2) \\ z = \varphi_2(x, C_1, C_2) \end{cases}$$

$$\begin{cases} y = \varphi_1(x, z, C_1, C_2) \\ z = \varphi_2(x, y, C_1, C_2) \end{cases}$$

$$\begin{cases} y = \varphi_1(x, C_1) \\ z = \varphi_2(x, C_2) \end{cases}$$

$$\begin{cases} y = \varphi_1(x, z, C_1) \\ z = \varphi_2(x, y, C_2) \end{cases}$$

Agar bir vaqtda nolga teng bo‘lmagan n ta $\alpha_1, \alpha_2, \ldots, \alpha_n$ sonlar mavjud bo‘lib,

$\alpha_1 \cdot y_1 + \alpha_2 \cdot y_2 + \cdots + \alpha_n \cdot y_n = 0$ ayniy munosabat bajarilsa, [a,b] kesmada aniqlangan va uzluksiz

$y_1, y_2, \ldots, y_n$ funksiyalar sistemasi … deyiladi.

1 5

chiziqli bog‘liq

chiziqli erkli

fundamental sistema

ortogonal

Agar $y_1, y_2, y_3, \cdots, y_n$ funksiyalar sistemasi chiziqli bog‘liq bo‘lsa, bu sistemaning Vronskiy determinanti

$W(x)$ funksiya aniqlangan barcha nuqtalarida … bo‘ladi.

1 5

aynan nolga teng

noldan farqli

musbat aniqlangan

manfiy aniqlangan

Agar $y_1, y_2, y_3, \dots, y_n$ funksiyalar chiziqli erkli va chiziqli bir jinsli DT ning yechimlari bo‘lsa, u holda bu funksiyalarning Vronskiy determinanti tenglamaning koeffitsiyentlari aniqlangan sohaning …

1 5

hech bir nuqtasida nolga teng bo‘lmaydi.

biror nuqtasida noldan farqli bo‘ladi.

biror nuqtasida nolga teng bo‘ladi.

barcha nuqtasida nolga teng bo‘ladi.

Quyidagi $y'' + p(x)y' + q(x)y = 0$ tenglamaga … deyiladi

1 5

Ikkinchi tartibli chiziqli bir jinsli differensial tenglama

Ikkinchi tartibli o‘zgarmas koeffitsientli chiziqli bir jinsli bo‘lmagan differensial tenglama

Ikkinchi tartibli o‘zgarmas koeffitsientli differensial tenglama

Ikkinchi tartibli chiziqli bir jinsli bo‘lmagan differensial tenglama

Quyidagi $y'' + p(x)y' + q(x)y$ tenglamaga … deyiladi $(f(x) \neq 0)$

1 5

Ikkinchi tartibli chiziqli bir jinsli bo‘lmagan differensial tenglama

Ikkinchi tartibli o‘zgarmas koeffitsientli chiziqli bir jinsli bo‘lmagan differensial tenglama

Ikkinchi tartibli bir jinsli differensial tenglama

Ikkinchi tartibli chiziqli bir jinsli differensial tenglama

$F(y, y', y'') = 0$ tenglamaning tartibini pasaytirish uchun qanday almashtirish bajariladi?

1 5

$y' = p,\ y'' = p\dfrac{dp}{dy}, \dots,$

$$p = y''$$

$$p = y' + y$$

$$p^k = y'$$

Laplas almashtirishini aniqlang:

1 5

$$F(\mathrm{p}) \doteq \int_0^\infty e^{-pt} f(\mathrm{t}) dt$$

$$F(\mathrm{p}) \doteq \int_p^\infty e^{pt} f(\mathrm{t}) dt$$

$$F(\mathrm{p}) \doteq \int_{-\infty}^\infty e^{-pt} f(\mathrm{t}) dt$$

$$F(\mathrm{p}) \doteq \int_{-p}^\infty e^{-pt} f(\mathrm{t}) dt$$

O’xshashlik teoremasini aniqlang:

1 5

$$f(\alpha\,\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow \frac{1}{\alpha} F\left(\frac{p}{\alpha}\right)$$

$$f(\alpha\,\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow -\frac{1}{\alpha} F(p)$$

$$f(\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow \frac{1}{\alpha} F\left(\frac{p}{\alpha}\right)$$

$$f(\alpha\,\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow F\left(\frac{p}{\alpha}\right)$$

Tasvirning siljish teoremasini aniqlang:

1 5

$$e^{\alpha t} f(\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow F(p-\alpha)$$

$$e^{\alpha t} f(\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow F(\mathrm{p}+\alpha)$$

$$e^{-\alpha t} f(\mathrm{t}) \leftarrow\!\cdot\!\cdot\!\cdot\!\rightarrow F(p-\alpha)$$

$e^{\alpha t}f(\mathrm{t}) \leftarrow\!\!\div\; -F(p-\alpha)$

Kechikish teoremasini aniqlang.

1 5

$f(t-t_0) \leftarrow\!\!\div\, e^{-pt_0}F(p)$

$f(\alpha\,\mathrm{t}) \leftarrow\!\!\div\, \frac{1}{\alpha}F\left(\frac{p}{\alpha}\right)$

$e^{\alpha t}f(\mathrm{t}) \leftarrow\!\!\div\, F(p-\alpha)$

$e^{\alpha t}f(t) \leftarrow\!\!\div\, F(p+\alpha)$

Quyidagi tenglamalardan qaysi birini tartibini pasaytirib bo`lmaydi?

1 5

$y''-2y'-3y=xe^{4x}$

$xy''=y'\ln\frac{y'}{x}$

$y'''(x-1)-y''=0$

$1+y'^2=y\,y''$

Quyidagilardan qaysi biri o`ng tomoni maxsus ko`rinishda bo`lgan differensial tenglama emas?

1 5

$y''+4y=4\sec 2x$

$y''+9y=3ch3x$

$y''+y=\frac{\sin x}{e^x}$

$y'''-y'=2e^x+\sin x.$

Quyidagilardan qaysi biri o`ng tomoni maxsus ko`rinishda bo`lgan differensial tenglama emas?

1 5

$y'' - 2y' + y = xe^{x^2}$

$y''' - y' = 2e^x + \cos x.$

$y'' + 2y' = 2\operatorname{sh} 2x.$

$y'' + y = \dfrac{\sin x}{e^x}$

Quyidagilardan qaysi biri o`ng tomoni maxsus ko`rinishda bo`lgan differensial tenglama?

1 5

$y'' - 2y' + y = \dfrac{x}{e^x}$

$y'' + 2y' + y = \dfrac{e^x}{x}$

$y'' + 2y = \sec x$

$y'' - 2y' + y = \dfrac{1}{xe^x}$

Quyidagilardan qaysi biri chiziqli bir jinsli bo‘lmagan differensial tenglamalar sistemasi?

1 5

$\begin{cases} x' = 2x + y \\ y' = 3x - 4e^t \end{cases}$

$\begin{cases} x' = 2x + y \\ y' = 3x \end{cases}$

$\begin{cases} x' = 2x + y \\ y' = 3x + 4y \end{cases}$

$\begin{cases} x' = y - 2x \\ y' = 3x \end{cases}$

Quyidagilardan qaysi biri chiziqli bir jinsli differensial tenglamalar sistemasi?

1 5

$$\begin{cases} x' = 2x + y \\ y' = 3x + 4y \end{cases}$$

$$\begin{cases} x' = -2x + y \\ y' = 3x - 6e^{-2t} \end{cases}$$

$$\begin{cases} x' = -y + 1 \\ y' = x - 2, \end{cases}$$

$$\begin{cases} x' = 2x + y \\ y' = 3x - 4e^{t} \end{cases}$$

Differensial tenglamaning umumiy yechimini toping

$$y'' - 10y' + 25y = 0$$

1 6

$$y = (C_1 + C_2 x)e^{5x}$$

$$y = (C_1 + C_2)e^{5x}$$

$$y = (C_1 x + C_2 x)e^{5x}$$

$$y = (C_1 + C_2 x)e^{5}$$

Differensial tenglamaning umumiy yechimini toping

$$y'' + y = 0$$

1 6

$$y = C_1 \cos x + C_2 \sin x$$

$$y = C_1 \cos y + C_2 \sin y$$

$$y = C\cos x + \sin x$$

$$y = Ce^{x}(\cos x + \sin x)$$

Differensial tenglamaning umumiy yechimini toping

$$y'' + 2y' = 0$$

1 6

$$y = C_1 + C_2 e^{-2x}$$

$$y = Ce^{-2x}$$

$$y = Ce^{2x}$$

$$y = C_1 + C_2 e^{2x}$$

Differensial tenglamaning umumiy yechimini toping

$$y'' - y' + y = 0$$

1 6

$$y = e^{\frac{x}{2}}(C_1 \cos\frac{\sqrt{3}}{2}x + C_2 \sin\frac{\sqrt{3}}{2}x)$$

$$y = C_1 \cos\frac{\sqrt{3}}{2}x + C_2 \sin\frac{\sqrt{3}}{2}x$$

$$y = e^{\frac{x}{2}}(C_1 \cos x + C_2 \sin x)$$

$$y = e^{\frac{3}{2}x}(C_1 \cos\frac{1}{2}x + C_2 \sin\frac{1}{2}x)$$

Differensial tenglamani yeching

$$y'' - 4y' + 8y = 0$$

1 6

$$y=e^{2x}(c_1\cos 2x+c_2\sin 2x)$$

$$y=c_1e^{2x}\cdot c_2e^{-2x}$$

$$y=e^{-2x}(c_1\cos 2x+c_2\sin 2x)$$

$$y=c_1e^{-2x}\cdot c_2e^{x}$$

Differensial tenglamani yeching

$$y'''-y''-9y'+9y=0$$

1 6

$$y=c_1e^{x}+c_2e^{3x}+c_3e^{-3x}$$

$$y=c_1e^{3x}+c_2e^{-3x}$$

$$y=c_1e^{x}+c_2e^{3x}+c_3e^{x}$$

$$y=c_1e^{x}+c_2e^{-3x}+c_3e^{-3x}$$

Differensial tenglamani yeching

$$y''-4y+4y=0$$

1 6

$$y=e^{2x}c_1+e^{2x}xc_2$$

$$y = e^{x}c_1 + e^{x}c_2$$

$$y = e^{x}c_1 + e^{-x}c_2$$

$$y = xe^{x}c_1 + e^{x}c_2$$

Differensial tenglamani yeching

$$y'' + 2y' = 0$$

1 6

$$y = c_1 + e^{-2x}c_2$$

$$y = e^{x}c_1 + e^{-x}c_2$$

$$y = e^{x}c_1 + e^{-2x}c_2$$

$$y = c_1 + e^{2x}c_2$$

Differensial tenglamani yeching

$$y'' + 2y' + 5y = 0$$

1 6

$$y = e^{-x}(c_1 \cos 2x + c_2 \sin 2x)$$

$$y = e^{-x}(c_1 \cos 2x + c_2 \cos 2x)$$

$$y = e^{x}(c_1 \cos 3x + c_2 \cos 3x)$$

$$y = e^{x}(c_1 \cos 2x + c_2 \sin 2x)$$

Differensial tenglamani yeching

$$y'' - 4y' + 8y = 0$$

1 6

$$y = e^{2x}(c_1 \cos 2x + c_2 \sin 2x)$$

$$y = e^{x}(c_1 \cos 2x + c_2 \sin 2x)$$

$$y = e^{-2x}(c_1 \cos 2x + c_2 \sin 2x)$$

$$y = e^{-x}(c_1 \cos 2x + c_2 \sin 2x)$$

Differensial tenglamani yeching

$$y'' + 6y' = 0$$

1 6

$$y = c_1 + e^{-6x}c_2$$

$$y = c_1 + e^{6x}c_2$$

$$y = xc_1 + e^{-6x}c_2$$

$$y = c_1e^{-6x} + e^{-6x}c_2$$

Differensial tenglamani yeching

$$y''' - y'' - y' + y = 0$$

1 6

$$y = c_1 e^x + e^x c_2 x + c_3 e^{-x}$$

$$y = (c_1 + c_2 x)e^{-x} + c_3 e^{-x}$$

$$y = (c_1 + c_2 x)e^x + c_3 e^{2x}$$

$$y = (c_1 + c_2 x)e^{-x} + c_3 e^{2x}$$

Differensial tenglamani yeching

$$y'' + 4y = 0$$

1 6

$$y = c_1 \cos 2x + c_2 \sin 2x$$

$$y = e^x (\cos 2x + \sin 2x)$$

$$y = e^x (c_1 \cos 2x + c_2 \sin 2x)$$

$$y = e^{-x} (c_1 \cos 2x + c_2 \sin 2x)$$

Differensial tenglamani yeching

$$y'' + 6y' + 9y = 0$$

1 6

$$y = (c_1 + c_2 x)e^{-3x}$$

$$y = (c_1 + c_2)e^{-3x}$$

$$y = c_1 e^{x} + e^{-3x} c_2$$

$$y = (c_1 + c_2 x^2)e^{-3x}$$

$y(0)=0$ va $y'(0)=-6$ boshlang'ich shartlar bilan berilgan

$$y'' - 2y' - 8y = 0$$

differensial tenglamani yeching.

1 6

$$y = e^{-2x} - e^{4x}$$

$$y = e^{x} - 2e^{2x}$$

$$y = 2e^{x} - 2e^{2x}$$

$$y = e^{-x} - e^{2x}$$

Umumiy yechim ko`rinishi orqali differensial tenglamani aniqlang:

$$y = c_1 e^{-x} + c_2 e^{-2x}$$

1 6

$$y'' + 3y' + 2y = 0$$

$$y'' - 3y' + 2y = 0$$

$$y'' + 3y' - 2y = 0$$

$$y'' + 3y' + 5y = 0$$

Umumiy yechim ko`rinishi orqali differensial tenglamani aniqlang:

$$y = c_1 e^{-2x} + c_2 e^{4x}$$

1 6

$$y'' - 2y' - 8y = 0$$

$$y'' - 5y' + 8y = 0$$

$$y'' + 7y' - 8y = 0$$

$$y'' + 8y' + 5y = 0$$

$$y_1 = e^x, \quad y_2 = e^{2x}$$

Fundamental yechimlari

bo`lgan differensial tenglamaning ko`rinishini aniqlang

1 6

$$y'' - 3y' + 2y = 0$$

$$y'' - 3y' - 2y = 0$$

$$y'' + 3y' - 2y = 0$$

$$y'' + 3y' + 5y = 0$$

$$y_1 = e^{2x}, \quad y_2 = e^{5x}$$

Fundamental yechimlari

bo`lgan differensial tenglamaning ko`rinishini aniqlang

1 6

$$y'' - 7y' + 10y = 0$$

$$y'' - 6y' - 10y = 0$$

$$y'' + 3y' - 10y = 0$$

$$y'' + 7y' + 10y = 0$$

Fundamental yechimlari $y_1 = e^x, \quad y_2 = e^{4x}$

bo`lgan differensial tenglamaning ko`rinishini aniqlang

1 6

$$y'' - 5y' + 4y = 0$$

$$y'' - 4y' - 5y = 0$$

$$y'' + 4y' - 5y = 0$$

$$y'' + 5y' + 4y = 0$$

Chiziqli differensial tenglamani yeching:

$$y' - \frac{4y}{x} = x$$

2 7

$$y = Cx^4 - \frac{1}{2}x^2$$

$$y = Cx^4 + x^2$$

$$y = Cx^4 + \frac{1}{2}x^2$$

$$y = x^3 + Cx^2$$

Chiziqli differensial tenglamani yeching:

$$y' + \frac{2y}{x} = 4x$$

2 7

$$y = \frac{C}{x^2} + x^2$$

$$y = \frac{C}{x^2} + \frac{x^2}{2}$$

$$y = Cx^4 + \frac{1}{2}x^2$$

$$y = x^3 + Cx^2$$

Chiziqli differensial tenglamani yeching:

$$y' + \frac{2y}{x} = 2x$$

2 7

$$y = \frac{C}{x^2} + \frac{x^2}{2}$$

$$y = \frac{C}{x^2} + x^2$$

$$y = Cx^4 - \frac{1}{2}x^2$$

$$y = Cx^4 - \frac{1}{2}x^2$$

Chiziqli differensial tenglamani yeching:

$$y' - \frac{4y}{x} = -2x$$

2 7

$$y = Cx^4 + x^2$$

$$y = Cx^4 - \frac{1}{2}x^2$$

$$y = Cx^4 + \frac{1}{2}x^2$$

$$y = x^3 + Cx^2$$

Chiziqli differensial tenglamani yeching:

$$y' + \frac{y}{x} = \frac{e^{-x}}{x}$$

2 7

$$y = \frac{Ce^x - 1}{xe^x}$$

$$y = \frac{Ce^x + 1}{xe^x}$$

$$y = \frac{Ce^x - 1}{e^x}$$

$$y = \frac{C + e^{-x}}{x^2}$$

Chiziqli differensial tenglamani yeching:

$$y' + 3y = e^x$$

2 7

$$y = \frac{C + e^{4x}}{4e^{3x}}$$

$$y = \frac{C + e^{4x}}{e^{3x}}$$

$$y = \frac{C + e^{3x}}{4e^{4x}}$$

$$y = \frac{C - e^{4x}}{4e^{3x}}$$

Chiziqli differensial tenglamani yeching:

$$y' = 4x + y$$

2 7

$$y = Ce^{x} - 4x - 4$$

$$y = e^{x} + x^{2} + C$$

$$y = e^{x} + C\left(x^{2} + x\right)$$

$$y = e^{x} + x + C$$

Chiziqli differensial tenglamani yeching:

$$y' - 2xy = e^{x^2}$$

2 7

$$y = \left(C + x\right)e^{x^2}$$

$$y = \left(C + x\right)e^{x}$$

$$y = \left(Cx + 1\right)e^{x^2}$$

$$y = C + xe^{x^2}$$

Chiziqli differensial tenglamani yeching:

$$y' + 2xy = e^{-x^2}$$

2 7

$$y = (C + x)e^{-x^2}$$

$$y = (C + x)e^{-2x}$$

$$y = (Cx + 1)e^{-x^2}$$

$$y = C + xe^{-x^2}$$

Chiziqli differensial tenglamani yeching:

$$y' - \frac{y}{x} = \ln x$$

2 7

$$y = x\left(C + \frac{1}{2}\ln^2 x\right)$$

$$y = x\left(C + \frac{1}{2}\ln x\right)$$

$$y = \ln x\left(C + x^2\right)$$

$$y = (C + \ln x)x^2$$

Differensial tenglamani yeching:

$$y' + \frac{y}{x} = \frac{\sin x}{x}$$

2 7

$$y = \frac{1}{x}(C - cosx)$$

$$y = \ln x\left(C + x^2\right)$$

$$y = x(C - cosx)$$

$$y = \frac{1}{x}(C + cosx)$$

Differensial tenglamani yeching:

$$y' + \frac{y}{x} = \frac{cosx}{x}$$

2 7

$$y = \frac{1}{x}(C + \sin x)$$

$$y = x(C + \sin x)$$

$$y = x(C - \sin x)$$

$$y = \frac{1}{x}(C - \sin x)$$

Differensial tenglamani yeching:

$$y' - \frac{y}{x} = x \sin x$$

2 7

$$y = x(C - cosx)$$

$$y = x(C + cosx)$$

$$y = \frac{1}{x}(C - cosx)$$

$$y = \frac{1}{x}(C + cosx)$$

Differensial tenglamani yeching:

$$y' - \frac{y}{x} = x \cos x$$

2 7

$$y = x(C + \sin x)$$

$$y = x(C - \sin x)$$

$$y = \frac{1}{x}(C - \sin x)$$

$$y = \frac{1}{x}(C + \sin x)$$

Differensial tenglamani yeching:

$$y' + \frac{2y}{x} = 3e^{-x^3}$$

2 7

$$y = x^{-2}\left(C - e^{-x^3}\right)$$

$$y = x^{-2}\left(C + e^{-x^3}\right)$$

$$y = x^{2}\left(C - e^{-x^3}\right)$$

$$y = x^{2}\left(C + e^{-x^3}\right)$$

Differensial tenglamani yeching:

$$y' + \frac{2y}{x} = -3e^{-x^3}$$

2 7

$$y = x^{-2}\left(C + e^{-x^3}\right)$$

$$y = x^{-2}\left(C - e^{-x^3}\right)$$

$$y = x^2\left(C - e^{-x^3}\right)$$

$$y = x^2\left(C + e^{-x^3}\right)$$

Differensial tenglamani yeching:

$$y' - \frac{2y}{x} = 3x^4 e^{x^3}$$

2 7

$$y = x^2\left(C + e^{x^3}\right)$$

$$y = x^2\left(C - e^{x^3}\right)$$

$$y = x^{-2}\left(C + e^{x^3}\right)$$

$$y = x^{-2}\left(C - e^{x^3}\right)$$

Differensial tenglamani yeching:

$$y' - \frac{2y}{x} = -3x^4 e^{-x^3}$$

2 7

$$y = x^2\left(C + e^{-x^3}\right)$$

$$y = x^2\left(C - e^{-x^3}\right)$$

$$y = x^{-2}\left(C + e^{-x^3}\right)$$

$$y = x^{-2}\left(C - e^{-x^3}\right)$$

Differensial tenglamani yeching:

$$y' + \frac{3y}{x} = \frac{3}{x}$$

2 7

$$y = 1 + \frac{C}{x^3}$$

$$y = x - \frac{C}{x^3}$$

$$y = \frac{C + x}{x^3}$$

$$y = \frac{C - x}{x^3}$$

Differensial tenglamani yeching:

$$y' = 1 - 2x + y$$

2 7

$$y = Ce^x + 2x + 1$$

$$y = e^x + x^2 + C$$

$$y = e^x + C\left(x^2 + x\right)$$

$$y = Ce^x - 2x - 2$$

Tenglamani yeching

$$y' = e^{-\frac{y}{x}} + \frac{y}{x}$$

2 8

$$y = x\ln\left(\ln(Cx)\right)$$

$$y = \ln\left(\ln(Cx^2)\right)$$

$$y = \ln\left(\ln(Cx)\right)$$

$$y = x + \ln\left(\ln(Cx)\right)$$

Tenglamani yeching

$$y' = e^{\frac{y}{x}} + \frac{y}{x}$$

2 8

$$y = -x\ln\left(\ln\left(\frac{C}{x}\right)\right)$$

$$y = x\ln\left(\ln\left(\frac{C}{x}\right)\right)$$

$$y = \ln\left(\ln\left(\frac{C}{x}\right)\right)$$

$$y = x + \ln\left(\ln\left(\frac{C}{x}\right)\right)$$

Tenglamani yeching

$$x^2 y' = -y^2 + xy$$

2 8

$$y = \frac{x}{\ln x + C}$$

$$y = \frac{\ln x + C}{x}$$

$$y = x(\ln x + C)$$

$$y = x\ln x + C$$

Tenglamani yeching

$$y' = \frac{xy}{x^2 - y^2}$$

2 8

$$2y^2 \ln(Cy) = -x^2$$

$$y^2 = -2x^2 \ln(Cx)$$

$$2y \ln(Cy) = -x^2$$

$$2y^2 \ln(Cy) = -x$$

Tenglamani yeching

$$y' = \frac{y - x}{x}$$

2 8

$$2y^2 \ln(Cy) = -x^2$$

$$x = y \ln\left(\frac{C}{x}\right)$$

$$y = x \ln\left(\frac{C}{y}\right)$$

$$y = x \ln\left(\frac{y}{C}\right)$$

Tenglamani yeching

$$y'x - y = x \sin\frac{y}{x}$$

2 8

$$y = 2x arctg\left(Cx\right)$$

$$y = x arctg(Cx)$$

$$y = x arctg(Cx^2)$$

$$y = 2x arctg(C + x)$$

Tenglamani yeching

$$x^2 y' = y^2$$

2 8

$$y = \frac{x}{1 - Cx}$$

$$y = \frac{x}{1 + Cx^2}$$

$$y = \frac{x}{1 - Cx^2}$$

$$y = \frac{x^2}{1 - Cx}$$

Tenglamani yeching

$$xy' = 2xtg\frac{y}{x} + y$$

2 8

$$y = x \arcsin(Cx^2)$$

$$y = \arcsin(Cx)$$

$$y = x + \arcsin(Cx)$$

$$y = x^2 \arcsin(Cx)$$

Tenglamani yeching

$x^2y' = x^2 + y^2 + xy$

2 9

$y = xtg(C + \ln x)$

$y = xctg(C + \ln x)$

$y = xtg(C - \ln x)$

$y = xctg(C - \ln x)$

Tenglamani yeching

$x^2y' = -x^2 + 2xy$

2 8

$y = x(1 + Cx)$

$y = x(1 + Cx^2)$

$y = x^2(1 + Cx)$

$y = x(C + x)$

Tenglamani yeching

$y^2y' = x^2$

2 8

$y = \sqrt[3]{x^3 + C}$

$y = \sqrt[3]{x^2 + C}$

$y = x\sqrt[3]{x^3 - C}$

$y = x\sqrt[3]{x^2 - C}$

Tenglamani yeching

$x^2y' = -3x^2 + 2xy$

2 8

$y = 3x + Cx^2$

$y = -3x + Cx^2$

$y = x + Cx^2$

$y = -x + Cx^2$

Tenglamani yeching

$x^2 y' = y^2 + xy$

2 8

$$y = \frac{x}{\ln\left(\frac{C}{x}\right)}$$

$$y = \frac{2x}{\ln\left(\frac{C}{x}\right)}$$

$$y = \frac{x}{\ln\left(\frac{C}{y}\right)}$$

$$y = -\frac{x}{\ln\left(\frac{C}{y}\right)}$$

Tenglamani yeching

$$y' = \frac{x^2 + y^2}{xy}$$

2 8

$y^2 = x^2\left(2\ln x + C\right)$

$y = x^2\left(2\ln x + C\right)$

$y^2 = x^2\left(-2\ln x + C\right)$

$$y = x\left(2\ln x + C\right)$$

Tenglamani yeching

$$y' = \frac{y}{x+y}$$

2 8

$$x = y\ln\left(Cy\right)$$

$$y = x\ln\left(Cx\right)$$

$$y = x\ln\left(Cy\right)$$

$$\ln y + \frac{y}{x} = C$$

Tenglamani yeching

$$xy' - y = xtg\frac{y}{x}$$

2 8

$$y = x\cdot\arcsin\left(Cx\right)$$

$$y = x\arcsin\left(Cx^2\right)$$

$$y = x + \arcsin\left(Cx\right)$$

$$y = x^2\arcsin\left(Cx\right)$$

Tenglamani yeching

$$x^2y' = -5x^2 + 2xy$$

2 8

$$y = 5x + Cx^2$$

$y = -5x + Cx^2$

$y = x + Cx^2$

$y = -x + Cx^2$

Tenglamani yeching

$x^2 y' = 5x^2 + 2xy$

2 8

$y = -5x + Cx^2$

$y = 5x + Cx^2$

$y = x + Cx^2$

$y = -x + Cx^2$

Tenglamani yeching

$y' = \frac{xy}{x^2 - y^2}$

2 8

$x^2 = -2y^2 \ln(Cy)$

$x^2 = 2y^2 \ln(Cy)$

$x^2 = 2y^2 \ln(Cx)$

$x = 2y \ln(Cy)$

Tenglamani yeching

$y' = \frac{y}{x - y}$

2 8

$$\ln y + \frac{x}{y} = C$$

$$\ln y - \frac{x}{y} = C$$

$$\ln|x| + \frac{x}{y} = C$$

$$2\ln y + \frac{y}{x} = C$$

$$y'' - 2y' - 3y = 4e^{3x} + x$$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$$y_* = Axe^{3x} + Bx + C$$

$$y_* = Ae^{3x} + Bx + C$$

$$y_* = Axe^{3x} + Bx$$

$$y_* = 4Ae^{3x} + Bx + C$$

$$y'' + y = xe^{x} + 2e^{-x}$$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$$y_* = (Ax + B)e^{x} + Ce^{-x}$$

$$(Ax + B)e^{x}$$

$$y_* = Axe^{x} + Ce^{-x}$$

$$y_* = Ae^{x} + Ce^{-x}$$

$y'' - 2y' + 2y = e^x + 2\cos x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Ae^x + B\cos x + C\sin x$

$y_* = Axe^x + B\cos x + C\sin x$

$y_* = Axe^x + B\cos x$

$y_* = Axe^x + Bx\cos x +$
$+Cx\sin x$

$y'' - 2y' + 2y = e^x \cos x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = e^x\left(Ax\cos x + Bx\sin x\right)$

$y_* = e^x\left(A\cos x + B\sin x\right)$

$y_* = Axe^x \cos x$

$y_* = \left(Ax + B\right)e^x \cos x$

$y'' + y = 4\sin x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = x\left(A\cos x + B\sin x\right)$

$y_* = A\sin x$

$y_* = A\cos x + B\sin x$

$y_* = Ax\sin x$

$y'' - y' = \operatorname{ch} 2x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Ae^{2x} + Be^{-2x}$

$y_* = Axe^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Bxe^{-2x}$

$y_* = Axe^{2x} + Bxe^{-2x}$

$y'' - 2y' = \operatorname{ch} 2x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Axe^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Bxe^{-2x}$

$y_* = Axe^{x} + Be^{-2x}$

$y'' + 2y' = \operatorname{ch} 2x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Ae^{2x} + Bxe^{-2x}$

$y_* = Axe^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Be^{-2x}$

$y_* = Axe^{x} + Be^{-2x}$

$y'' - 4y = \operatorname{ch} 2x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Axe^{2x} + Bxe^{-2x}$

$y_* = Axe^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Be^{-2x}$

$y_* = Ae^{2x} + Bxe^{-2x}$

$y'' + 4y = \operatorname{ch} 2x$

tenglama uchun xususiy yechim qanday ko`rinishda qidiriladi?

2 9

$y_* = Ae^{2x} + Be^{-2x}$

$y_* = A\cos x + B\sin x$

$y_* = Axe^{2x} + Bxe^{-2x}$

$y_* = A\cos x$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = (Ax + B)e^{x} + Ce^{-x}$

2 9

$y'' + y = xe^{x} + 2e^{-x}$

$y'' + y = 3e^{x} + xe^{-x}$

$y'' + 4y = \operatorname{ch} x$

$y'' - y = xe^{x} + 3e^{-x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = Ae^{2x} + Bxe^{-2x}$

2 9

$y'' + 2y' = sh2x$

$y'' + 4y = \operatorname{ch} x$

$y'' + y = 3e^{2x} + xe^{-2x}$

$y'' + y = xe^{x} + 2e^{-x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = e^{x}\left(Ax\cos x + Bx\sin x\right)$

2 9

$y'' - 2y' + 2y = e^{x}\cos x$

$y'' + 4y = 5\sin x$

$y'' + 4y = e^{x}\sin x$

$y'' + y = 4\sin x$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = Axe^{2x} + Be^{-2x}$

2 9

$y'' - 2y' = sh2x$

$y'' + y = xe^{2x} + 2e^{-2x}$

$y'' + y = 3e^{2x} + xe^{-2x}$

$y'' + 2y' = sh2x$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = Axe^{2x} + Bxe^{-2x}$

2 9

$y'' - 4y = \mathrm{ch}\,2x$

$y'' - 2y' = sh2x$

$y'' - 2y' = 3e^{2x} + xe^{-2x}$

$y'' + y = xe^{2x} + 2e^{-2x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = \left(Ax^3 + Bx^2\right)e^{2x}$

2 9

$y'' - 4y' + 4y = 6xe^{2x}$

$y'' - 4y = \mathrm{ch}\,2x$

$y'' - 2y' = xe^{2x}$

$y'' - 4y = x^2e^{2x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = (Ax + B)e^x + Cxe^{4x}$

2 9

$y'' - 3y' - 4y = xe^x + e^{4x}$

$y'' + 3y' - 4y = xe^x + e^{4x}$

$y'' - 3y' - 4y = e^x + xe^{4x}$

$y'' + 3y' - 4y = e^{-x} + xe^{4x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = (Ax^2 + Bx)e^x + Ce^{4x}$

2 9

$y'' + 3y' - 4y = xe^x + e^{4x}$

$y'' - 3y' - 4y = xe^x + e^{4x}$

$y'' - 3y' - 4y = e^x + xe^{4x}$

$y'' + 3y' - 4y = e^{-x} + xe^{4x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_* = Ae^x + (Bx^2 + Cx)e^{4x}$

2 9

$y'' - 3y' - 4y = e^x + xe^{4x}$

$y'' + 3y' - 4y = xe^x + e^{4x}$

$y'' - 3y' - 4y = xe^x + e^{4x}$

$y''+3y'-4y=e^{-x}+xe^{4x}$

Qaysi tenglamaning xususiy yechimi quyidagi ko‘rinishda qidiriladi?

$y_*=Axe^{-x}+\left(Bx^2+Cx\right)e^{4x}$

2 9

$y''-3y'-4y=e^{-x}+xe^{4x}$

$y''-3y'-4y=xe^{-x}+4e^{4x}$

$y''+3y'-4y=xe^{-x}+e^{4x}$

$y''+3y'-4y=e^{-x}+xe^{4x}$

Koshi masalasini yechimini toping

$y''=4e^{-2x}+6x\;\; y(0)=1,\; y'(0)=0$

2 10

$y=e^{-2x}+x^3+2x$

$y=e^{-2x}+x^3+x+1$

$y=2e^{-2x}+x^3+2x-1$

$y=e^{-2x}+2x-1$

Koshi masalasini yechimini toping

$y''=xe^{-x}\;\; y(0)=1,\; y'(0)=0$

2 10

$y=(x+2)e^{-x}+x-1$

$y=(x+2)e^{-x}$

$y=(x+2)e^{-x}+x$

$y=(x+2)e^{-x}+1$

Koshi masalasini yechimini toping

$y''=8\cos^2 x \quad y(0)=-1,\ y'(0)=1$

2 10

$y=2x^2-\cos 2x+x$

$y=1-2\cos 2x+x$

$y=x-\cos 2x$

$y=2x^3-\cos 2x+x$

Koshi masalasini yechimini toping

$y''=e^{2x} \quad y(0)=1,\ y'(0)=0$

2 10

$y=\frac{1}{4}e^{2x}-\frac{1}{2}x+\frac{3}{4}$

$y=\frac{1}{4}e^{2x}+\frac{1}{2}x+\frac{3}{4}$

$y=\frac{1}{4}e^{2x}-\frac{1}{2}x+1$

$y=\frac{1}{2}e^{2x}-x+\frac{1}{2}$

Koshi masalasini yechimini toping

$y''=\sin 2x \quad y(0)=1,\ y'(0)=-1$

2 10

$y=-\frac{1}{4}\sin 2x-\frac{1}{2}x+1$

$$y=\frac{1}{4}\sin 2x+1$$

$$y=-\frac{1}{4}\sin 2x+\frac{1}{2}x+1$$

$$y=\frac{1}{4}\sin 2x-x+1$$

Koshi masalasini yechimini toping

$$y''=e^{-x}+2x\ \ y(0)=1,\ y'(0)=0$$

2 10

$$y=e^{-x}+\frac{x^3}{3}+x$$

$$y=e^{-x}+\frac{x^3}{6}+x$$

$$y=e^{-x}+\frac{x^3}{6}+x+1$$

$$y=e^{-x}+\frac{x^3}{2}+2x$$

$$y'''=24x$$

tenglamaning umumiy yechimini toping.

2 10

$$y=x^4+C_1x^2+C_2x+C_3$$

$$y=x^2+x+1$$

$$y=x^3+C_1x+C_2$$

$$y=x^2+C_1x+C_2$$

$$\left(1+x^2\right)y''-2xy'=2x$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1\left(x + \frac{x^3}{3}\right) - x + C_2$$

$$y = C_1\left(x + \frac{x^3}{3}\right) + C_2$$

$$y = C\left(x + \frac{x^3}{3}\right) - x$$

$$y = C\left(x + \frac{x^3}{3}\right) + x$$

$$y''(x-1) - y' = 0$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1x^2 - 2C_1x + C_2$$

$$y = C_1\frac{x^2}{2} - C_2x$$

$$y = C_1x^2 + C_2$$

$$y = C_1\frac{x^2}{2} - x + C_2$$

$$y''' = \cos x$$

tenglamaning umumiy yechimini toping.

2 10

$$y = -\sin x + C_1x^2 + C_2x + C$$

$$y = -\sin x + Cx$$

$$y = \sin x + \frac{C_1x^2}{2} + C_2x + C_3$$

$$y = -\sin x + \frac{Cx^2}{2}$$

$$y'' = xe^{-x}$$

tenglamaning umumiy yechimini toping.

2 10

$y = (x+2)e^{-x} + C_1 x + C_2$

$y = (x+2)e^{x} + Cx$

$y = e^{-x} + Cx - C_1$

$y = C(x+2)e^{-x}$

$(1+x)y'' - y' = 1$

tenglamaning umumiy yechimini toping.

2 10

$y = C_1\left(x + \frac{x^2}{2}\right) - x + C_2$

$y = C_1\left(x + \frac{x^2}{2}\right) + C_2$

$y = C\left(x + \frac{x^2}{2}\right) - x$

$y = C_1\left(x + \frac{x^2}{2}\right) + C_2 x$

$y''(x+1) - y' = 0$

tenglamaning umumiy yechimini toping.

2 10

$y = C_1 x^2 + 2C_1 x + C_2$

$y = C_1 \frac{x^2}{2} - C_2 x$

$y = C_1 x^2 + C_2$

$$y = C_1 \frac{x^2}{2} - x + C_2$$

$$\left(e^x + 2\right) y'' - e^x y' = 0$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1 (e^x + 2x) + C_2$$

$$y = C_1 (e^x - 2x) + C_2$$

$$y = C_1 e^x + 2C_2 x$$

$$y = C_1 (e^x - 2x) + C_2 x$$

$$\left(e^x + 3\right) y'' - e^x y' = 0$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1 (e^x + 3x) + C_2$$

$$y = C_1 (e^x - 3x) + C_2$$

$$y = C_1 e^x + 3x + C_2$$

$$y = C_1 (e^x - 3x) + C_2 x$$

$$(1 + x) y'' - y' = 2$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1 \left(x + \frac{x^2}{2} \right) - 2x + C_2$$

$$y = C_1 \left(x + \frac{x^2}{2} \right) + C_2$$

$$y = C\left(x + \frac{x^2}{2}\right) + 2x$$

$$y = C_1\left(x + \frac{x^2}{2}\right) + C_2 x$$

$$\left(e^x - 2\right)y'' - e^x y' = 0$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1(e^x - 2x) + C_2$$

$$y = C_1(e^x + 2x) + C_2$$

$$y = C_1 e^x + 2C_2 x$$

$$y = C_1(e^x - 2x) + C_2 x$$

$$\left(e^x + 1\right)y'' = e^x y'$$ 1

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1(e^x + x) + C_2$$

$$y = C_1 e^x + C_2 x$$

$$y = C_1 e^x + x + C_2$$

$$y = C_1\left(e^x + 1\right) + C_2 x$$

$$(1 - 2x)y'' + 2y' = 2$$

tenglamaning umumiy yechimini toping.

2 10

$$y = C_1\left(x^2 - x\right) + x + C_2$$

$$y = C_1\left(x^2 - x\right) + 2x + C_2$$

$y = C_1\left(x^2 + x\right) - x + C_2$

$y = C\left(x^2 - x\right) + 2x$

$(2x+1)y'' - 2y' = 2$

tenglamaning umumiy yechimini toping.

2 10

$y = C_1\left(x^2 + x\right) - x + C_2$

$y = C_1\left(x^2 + x\right) + 2x + C_2$

$y = C_1\left(x^2 - x\right) + x + C_2$

$y = C\left(x^2 + x\right) - 2x$

Differensial tenglamaning umumiy integralini toping.

$\left(2xy^2 + e^x\right)dx + \left(2x^2y - \cos x\right)dy = 0$

2 11

$x^2y^2 + e^{x\cdot} - \sin x = C$

$2x^2y^2 + e^{x\cdot} + \sin x = C$

$2x^2y^2 + e^{x\cdot} - \sin x = C$

$x^2y^2 + e^{x\cdot} + \sin x = C$

Differensial tenglamaning umumiy integralini toping.

$2x\left(y^2 + 1\right)dx + y\left(2x^2 - 3y\right)dy = 0$

2 11

$x^2y^2 + x^{2\cdot} - y^3 = C$

$2x^2y^2 + x^{2\cdot} - y^3 = C$

$x^2y^2 - x^{2.} + y^3 = C$

$2x^2y^2 + x^{2.} + y^3 = C$

Differensial tenglamaning umumiy integralini toping.

$(2xy + 3y^2)dx + (x^2 + 6xy)dy = 0$

2 11

$x^2y + 3xy^2 = C$

$x^2y + 6xy = C$

$3xy^2 + x^3y = C$

$x^3y + 3xy^2 = C$

Differensial tenglamaning umumiy integralini toping.

$(x + \sin y)dx + (x\cos y + \sin y)dy = 0.$

2 11

$\frac{x^2}{2} + x\sin y - \cos y = C$

$\frac{x^2}{2} + 2x\sin y - \cos y = C$

$\frac{x^2}{2} + x\sin y + \cos y = C$

$\frac{x^2}{2} + 2x\sin y + \cos y = C$

Differensial tenglamaning umumiy integralini toping.

$e^y dx + (xe^y - 2y)dy = 0.$

2 11

$xe^y - y^2 = C$

$2xe^y - y^2 = C$

$xe^y + y^2 = C$

$2xe^y + y^2 = C$

Differensial tenglamaning umumiy integralini toping.

$(x^3 + \cos y)dy - (2 - 3x^2 y)dx = 0$

2 11

$x^3 y + \sin y - 2x = C$

$2x^3 y + x\cos y - 2x = C$

$x^3 y - \sin y + 2x = C$

$x^3 y + x\cos y - x = C$

Differensial tenglamaning umumiy integralini toping.

$\left(\frac{1}{x^2} - y\right)dx + (y - x)dy = 0$

2 11

$-\frac{1}{x} - xy + \frac{y^2}{2} = C$

$-\frac{1}{x} - 2xy + \frac{y^2}{2} = C$

$\frac{1}{x} - xy + \frac{y^2}{2} = C$

$-\frac{1}{x} + 2xy + \frac{y^2}{2} = C$

Differensial tenglamaning umumiy integralini toping.

$(e^y + 2xy)dx + (e^y + x)xdy = 0$

2 11

$xe^y + x^2y = C$

$2xe^y + x^2y = C$

$xe^y + 2x^2y = C$

$2xe^y - x^2y = C$

Differensial tenglamaning umumiy integralini toping.

$(x^3 + xy^2)dx + x^2ydy = 0$

2 11

$\frac{x^4}{4} + \frac{x^2y^2}{2} = C$

$\frac{x^4}{2} + \frac{x^2y^2}{2} = C$

$\frac{x^4}{4} + x^2y^2 = C$

$x^4 + x^2y^2 = C$

Differensial tenglamaning umumiy integralini toping.

$(2x + \sin y)dx + (x\cos y + e^y)dy = 0$

2 11

$x^2 + x\sin y + e^y = C$

$x^2 + 2x\sin y - e^y = C$

$x^2 + x\sin y - e^y = C$

$x^2 + 2x\sin y + e^y = C$

Differensial tenglamaning umumiy integralini toping.

$(2x+\sin y)\,dx+(x\cos y+tgy)\,dy=0$

2 11

$x^2+x\sin y-\ln|\cos x|=C$

$x^2+x\sin y+\ln|\cos x|=C$

$x^2+x\sin y-\ln|\sin x|=C$

$x^2+2x\sin y-\ln|\cos x|=C$

Differensial tenglamaning umumiy integralini toping.

$2x\left(5y^2+3x\right)dx+\left(10x^2-3y\right)ydy=0$

2 11

$5x^2y^2+2x^3-y^3=C$

$10x^2y^2+2x^3-y^3=C$

$5x^2y^2+3x^3-y^3=C$

$10x^2y^2+x^3-y^3=C$

Differensial tenglamaning umumiy integralini toping.

$\left(y^3+\cos x\right)dx+3xy^2dy=0$

2 11

$xy^3+\sin x=C$

$2xy^3-\sin x=C$

$2xy^3+y\sin x=C$

$xy^3+y\sin x=C$

Differensial tenglamaning umumiy integralini toping.

$$\left(2xy+\sin y-e^{-x}\right)dx+\left(x^2+x\cos y\right)dy=0$$

2 11

$x^2y+x\sin y+e^{-x}=C$

$2x^2y+2x\cos y+e^{-x}=C$

$x^2y+x\cos y-e^{-x}=C$

$2x^2y+2x\sin y+e^{-x}=C$

Differensial tenglamaning umumiy integralini toping.

$$\left(3x^2+2x-y\right)dx+\left(2y-x+3y^2\right)dy=0$$

2 11

$x^3+y^3+x^2+y^2-xy=C$

$x^3+y^3+x^2+y^2-2xy=C$

$x^3-y^3+x^2-2xy=C$

$x^3+yx^2-2xy=C$

Differensial tenglamaning umumiy integralini toping.

$$\left(e^y-chx\right)dx+\left(xe^y-2y\right)dy=0$$

2 11

$xe^y-shx-y^2=C$

$xe^y+shx-y^2=C$

$xe^y-2shx-y^2=C$

$xe^y+2shx-y^2=C$

Differensial tenglamaning umumiy integralini toping.

$\left(2x+ye^{xy}\right)dx-\left(2-xe^{xy}\right)dy=0$

2 11

$x^2+e^{xy}-2y=C$

$x^2-e^{xy}+2y=C$

$x^2+2e^{xy}-2y=C$

$x^2-2e^{xy}+2y=C$

Differensial tenglamaning umumiy integralini toping.

$\left(2x-ye^{xy}\right)dx-\left(xe^{xy}-2\right)dy=0$

2 11

$x^2-e^{xy}+2y=C$

$x^2+e^{xy}-2y=C$

$x^2+2e^{xy}-2y=C$

$x^2-2e^{xy}+2y=C$

Differensial tenglamaning umumiy integralini toping.

$\left(2xy+y\sec^2 x+1\right)dx+\left(x^2+tgx\right)dy=0$

2 11

$x^2y+ytgx+x=C$

$2x^2y+2ytgx+x=C$

$x^2y-2ytgx+x=C$

$2x^2y-ytgx+x=C$

Differensial tenglamaning umumiy integralini toping.

$$\left(y+e^x\sin y\right)dx+\left(x+e^x\cos y-1\right)dy=0$$

2 11

$$xy+e^x\sin y-y=C$$

$$2xy+2e^x\sin y-y=C$$

$$xy+2e^x\sin y-y=C$$

$$xy+2e^x\sin y+y=C$$

Ushbu $y''+py'+qy=f(x)$ differensial tenglamani o‘zgarmasni variatsiyalash usulida yechishda $C_1(x)$ va $C_2(x)$ funksiyalarni aniqlovchi tenglamalar sistemasini tuzing.

2 12

$$\begin{cases}C_1'y_1+C_2'y_2=0\\C_1'y_1'+C_2'y_2'=f(x)\end{cases}$$

$$\begin{cases}C_1y_1+C_2y_2=0\\C_1y_1'+C_2y_2'=f(x)\end{cases}$$

$$\begin{cases}C_1y_1'+C_2y_2'=0\\C_1y_1'+C_2y_2'=f(x)\end{cases}$$

$$\begin{cases}C_1'y_1+C_2'y_2=0\\C_1y_1'+C_2y_2'=f(x)\end{cases}$$

$$y''+4y=2tgx$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases}C_1'(x)\cos 2x+C_2'(x)\sin 2x=0\\-C_1'(x)\sin 2x+C_2'(x)\cos 2x=tgx\end{cases}$$

$$\begin{cases} C_1'(x)e^{2x} + C_2'(x)e^{-2x} = 0 \\ C_1'(x)e^{2x} - C_2'(x)e^{-2x} = tgx \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = 2tgx \end{cases}$$

$$\begin{cases} C_1'(x)e^{2x} + C_2'(x)e^{-2x} = 0 \\ C_1'(x)xe^{2x} - C_2'(x)e^{-2x} = 2tgx \end{cases}$$

$$y'' + 3y' + 2y = \frac{1}{e^x + 1}$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)e^{-x} + C_2'(x)e^{-2x} = 0 \\ -C_1'(x)e^{-x} - 2C_2'(x)e^{-2x} = \frac{1}{e^x + 1} \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = \frac{1}{e^x + 1} \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -2C_1'(x)\sin 2x + 2C_2'(x)\cos 2x = \frac{1}{e^x + 1} \end{cases}$$

$$\begin{cases} C_1(x)e^{-x} + C_2(x)e^{-2x} = 0 \\ -C_1(x)e^{-x} - 2C_2(x)e^{-2x} = \frac{1}{e^x + 1} \end{cases}$$

$$y'' + y = \frac{1}{\sin x}$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)\cos x + C_2'(x)\sin x = 0 \\ -C_1'(x)\sin x + C_2'(x)\cos x = \dfrac{1}{\sin x} \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = \dfrac{1}{\sin x} \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -2C_1'(x)\sin 2x + 2C_2'(x)\cos 2x = \dfrac{1}{\sin x} \end{cases}$$

$$\begin{cases} C_1(x)\cos x + C_2(x)\sin x = 0 \\ -C_1(x)\sin x + C_2(x)\cos x = \dfrac{1}{\sin x} \end{cases}$$

$$y'' - 2y' + y = \frac{e^x}{x}$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)e^x + C_2'(x)xe^x = 0 \\ C_1'(x)e^x + C_2'(x)(1+x)e^x = \dfrac{e^x}{x} \end{cases}$$

$$\begin{cases} C_1'(x)e^x + C_2'(x)e^{-x} = 0 \\ C_1'(x)e^x - C_2'(x)e^{-x} = \dfrac{e^x}{x} \end{cases}$$

$$\begin{cases} C_1'(x)e^x + C_2'(x)e^{-x} = 0 \\ C_1'(x)xe^x - C_2'(x)e^{-x} = \dfrac{e^x}{x} \end{cases}$$

$$\begin{cases} C_1'(x)e^x + C_2'(x)xe^x = \dfrac{e^x}{x} \\ C_1'(x)e^x + C_2'(x)(1+x)e^x = 0 \end{cases}$$

$$y''+2y'+y=\frac{3\sqrt{1+x}}{e^x}$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)xe^{-x}=0 \\ -C_1'(x)e^{-x}+C_2'(x)(1-x)e^{-x}=\dfrac{3\sqrt{1+x}}{e^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{x}+C_2'(x)xe^{x}=0 \\ C_1'(x)e^{x}+C_2'(x)(1+x)e^{x}=\dfrac{3\sqrt{1+x}}{e^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)e^{x}=0 \\ -C_1'(x)e^{-x}+C_2'(x)e^{x}=\dfrac{3\sqrt{1+x}}{e^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)e^{x}=\dfrac{3\sqrt{1+x}}{e^x} \\ -C_1'(x)e^{-x}+C_2'(x)e^{x}=0 \end{cases}$$

$$y''+2y'+y=\frac{1}{xe^x}$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)xe^{-x}=0 \\ -C_1'(x)e^{-x}+C_2'(x)(1-x)e^{-x}=\dfrac{1}{xe^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{x}+C_2'(x)xe^{x}=0 \\ C_1'(x)e^{x}+C_2'(x)(1+x)e^{x}=\dfrac{1}{xe^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)e^{x}=0 \\ -C_1'(x)e^{-x}+C_2'(x)e^{x}=\dfrac{1}{xe^x} \end{cases}$$

$$\begin{cases} C_1'(x)e^{-x} + C_2'(x)e^{x} = \dfrac{1}{xe^{x}} \\ -C_1'(x)e^{-x} + C_2'(x)e^{x} = 0 \end{cases}$$

$$y'' + y = 4ctgx$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)\cos x + C_2'(x)\sin x = 0 \\ -C_1'(x)\sin x + C_2'(x)\cos x = 4ctgx \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = 4ctgx \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -2C_1'(x)\sin 2x + 2C_2'(x)\cos 2x = 4ctgx \end{cases}$$

$$\begin{cases} C_1(x)\cos x + C_2(x)\sin x = 0 \\ -C_1(x)\sin x + C_2(x)\cos x = 4ctgx \end{cases}$$

$$y'' + y = 2\sec^3 x$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x)\cos x + C_2'(x)\sin x = 0 \\ -C_1'(x)\sin x + C_2'(x)\cos x = 2\sec^3 x \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = 2\sec^3 x \end{cases}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -2C_1'(x)\sin 2x + 2C_2'(x)\cos 2x = 2\sec^3 x \end{cases}$$

$$\begin{cases} C_1(x)\cos x + C_2(x)\sin x = 0 \\ -C_1(x)\sin x + C_2(x)\cos x = 2\sec^3 x \end{cases}$$

$$y'' + 2y' = 3sh2x$$

differensial tenglamani o‘zgarmasni variatsiyalash usulida yechish uchun tuzilgan sistemani aniqlang.

2 12

$$\begin{cases} C_1'(x) + C_2'(x)e^{-2x} = 0 \\ -2C_2'(x)e^{-2x} = 3shx \end{cases}$$

$$\begin{cases} C_1'(x)e^{x} + C_2'(x)e^{-2x} = 0 \\ C_1'(x)e^{x} - 2C_2'(x)e^{-2x} = 3shx \end{cases}$$

$$\begin{cases} C_1'(x)e^{x} + C_2'(x)e^{2x} = 0 \\ C_1'(x)e^{x} + 2C_2'(x)e^{2x} = 3shx \end{cases}$$

$$\begin{cases} C_1'(x) + C_2'(x)e^{2x} = 0 \\ 2C_2'(x)e^{2x} = 3shx \end{cases}$$

$$\begin{cases} C_1'(x) + C_2'(x)e^{-2x} = 0 \\ -2C_2'(x)e^{-2x} = 3shx \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + 2y' = 3shx$$

$$y'' + 2y = 3shx$$

$$y'' - 2y = 3shx$$

$$y'' - 2y' = 3shx$$

$$\begin{cases} C_1'(x)\cos x + C_2'(x)\sin x = 0 \\ -C_1'(x)\sin x + C_2'(x)\cos x = 4ctgx \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + y = 4ctgx$$

$$y'' + 2y' = 4ctgx$$

$$y'' + y' = 4ctgx$$

$$y'' - 2y' = 4ctgx$$

$$\begin{cases} C_1'(x) + C_2'(x)e^{3x} = 0 \\ C_2'(x)e^{3x} = ch2x \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' - 3y' = 3ch2x$$

$$y'' - 3y = 2ch2x$$

$$y'' + 3y' = ch2x$$

$$y'' - 3y = 3chx$$

$$\begin{cases} C_1'(x)\cos x + C_2'(x)\sin x = 0 \\ -C_1'(x)\sin x + C_2'(x)\cos x = 2\sec^3 x \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + y = 2\sec^3 x$$

$$y'' - y = 2\sec^3 x$$

$$y'' + y' = 2\sec^3 x$$

$$y'' - y' = 2\sec^3 x$$

$$\begin{cases} C_1'(x)e^{-x} + C_2'(x)xe^{-x} = 0 \\ -C_1'(x)e^{-x} + C_2'(x)(1-x)e^{-x} = \dfrac{1}{xe^x} \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + 2y' + y = \frac{1}{xe^x}$$

$$y'' - 2y' + y = \frac{1}{xe^x}$$

$$y'' - y = \frac{1}{xe^x}$$

$$y'' + y' = \frac{1}{xe^x}$$

$$\begin{cases} C_1'(x)e^{x} + C_2'(x)xe^{x} = 0 \\ C_1'(x)e^{x} + C_2'(x)(1+x)e^{x} = \dfrac{e^x}{x} \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' - 2y' + y = \frac{e^x}{x}$$

$$y'' + 2y' + y = \frac{e^x}{x}$$

$$y'' + 2y' + y = \frac{1}{xe^x}$$

$$y'' - 2y' + y = \frac{1}{xe^x}$$

$$\begin{cases} C_1'(x)e^{-x} + C_2'(x)xe^{-x} = 0 \\ -C_1'(x)e^{-x} + C_2'(x)(1-x)e^{-x} = \frac{3\sqrt{1+x}}{e^x} \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + 2y' + y = \frac{3\sqrt{1+x}}{e^x}$$

$$y'' - 2y' + y = \frac{3\sqrt{1+x}}{e^x}$$

$$y'' + y = \frac{3\sqrt{1+x}}{e^x}$$

$$y'' - y = \frac{3\sqrt{1+x}}{e^x}$$

$$\begin{cases} C_1'(x)\cos 2x + C_2'(x)\sin 2x = 0 \\ -C_1'(x)\sin 2x + C_2'(x)\cos 2x = tgx \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y'' + 4y = 2tgx$$

$$y'' + 4y = tgx$$

$$y''-4y=2tgx$$

$$y''-4y=tgx$$

$$\begin{cases} C_1'(x)e^{-x}+C_2'(x)e^{-2x}=0 \\ -C_1'(x)e^{-x}-2C_2'(x)e^{-2x}=\dfrac{1}{e^x+1} \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y''+3y'+2y=\frac{1}{e^x+1}$$

$$y''+y'-2y=\frac{1}{e^x+1}$$

$$y''-3y'+2y=\frac{1}{e^x+1}$$

$$y''-y'-2y=\frac{1}{e^x+1}$$

$$\begin{cases} C_1'(x)e^{x}+C_2'(x)e^{-2x}=0 \\ C_1'(x)e^{x}-2C_2'(x)e^{-2x}=\dfrac{1}{e^x+1} \end{cases}$$

Sistema qaysi differensial tenglamani Lagranj usulida yechish uchun tuzilgan?

2 12

$$y''+y'-2y=\frac{1}{e^x+1}$$

$$y''+3y'+2y=\frac{1}{e^x+1}$$

$$y''-3y'+2y=\frac{1}{e^x+1}$$

$$y'' - y' - 2y = \frac{1}{e^x + 1}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = 2y, & x(0) = 0 \\ y' = -2x, & y(0) = 2 \end{cases}$$

2 13

$$\begin{cases} x(t) = 2\sin 2t \\ y(t) = 2\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -2\sin 2t \\ y(t) = 2\cos 2t \end{cases}$$

$$\begin{cases} x(t) = 2\,\mathrm{sh}\, 2t \\ y(t) = 2\,\mathrm{ch}\, 2t \end{cases}$$

$$\begin{cases} x(t) = -2sh2t \\ y(t) = 2ch2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = 2y, & x(0) = 1 \\ y' = -2x, & y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = \cos 2t \\ y(t) = -\sin 2t \end{cases}$$

$$\begin{cases} x(t) = cos2t \\ y(t) = \sin 2t \end{cases}$$

$$\begin{cases} x(t) = 1 + \sin 2t \\ y(t) = 1 - \cos 2t \end{cases}$$

$$\begin{cases} x(t) = 1 - \sin 2t \\ y(t) = 1 - \cos 2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = 2y, & x(0) = 0 \\ y' = -2x, & y(0) = 1 \end{cases}$$

2 13

$$\begin{cases} x(t) = \sin 2t \\ y(t) = \cos 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = \cos 2t \end{cases}$$

$$\begin{cases} x(t) = 2\sin 2t \\ y(t) = 2\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -sh2t \\ y(t) = ch2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = 2y, & x(0) = -2 \\ y' = -2x, & y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = -2\cos 2t \\ y(t) = 2\sin 2t \end{cases}$$

$$\begin{cases} x(t) = 2\sin 2t \\ y(t) = 2\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -2\cos 2t \\ y(t) = -2\sin 2t \end{cases}$$

$$\begin{cases} x(t) = 2\cos 2t \\ y(t) = -2\sin 2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = 2y, \quad x(0) = -1 \\ y' = -2x, \quad y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = -\cos 2t \\ y(t) = \sin 2t \end{cases}$$

$$\begin{cases} x(t) = -cos2t \\ y(t) = -\sin 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -ch2t \\ y(t) = sh2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = -2y, \quad x(0) = -1 \\ y' = 2x, \quad y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = -cos2t \\ y(t) = -\sin 2t \end{cases}$$

$$\begin{cases} x(t) = -\cos 2t \\ y(t) = \sin 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -ch2t \\ y(t) = sh2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = -2y, & x(0) = 1 \\ y' = 2x, & y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = cos2t \\ y(t) = \sin 2t \end{cases}$$

$$\begin{cases} x(t) = \cos 2t \\ y(t) = -\sin 2t \end{cases}$$

$$\begin{cases} x(t) = \sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = ch2t \\ y(t) = sh2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = -2y, & x(0) = 0 \\ y' = 2x, & y(0) = 1 \end{cases}$$

2 13

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = \cos 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = \cos 2t \end{cases}$$

$$\begin{cases} x(t) = ch2t \\ y(t) = -sh2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = -2y, & x(0) = 0 \\ y' = 2x, & y(0) = -1 \end{cases}$$

2 13

$$\begin{cases} x(t) = \sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = \cos 2t \end{cases}$$

$$\begin{cases} x(t) = -\sin 2t \\ y(t) = -\cos 2t \end{cases}$$

$$\begin{cases} x(t) = ch2t \\ y(t) = sh2t \end{cases}$$

Differensial tenglamalar sistemasini noma’lumlarni yo‘qotish usulida yeching:

$$\begin{cases} x' = -2y, & x(0) = 2 \\ y' = 2x, & y(0) = 0 \end{cases}$$

2 13

$$\begin{cases} x(t) = 2cos2t \\ y(t) = 2\sin 2t \end{cases}$$

$$\begin{cases} x(t) = 2\cos 2t \\ y(t) = -2\sin 2t \end{cases}$$

$$\begin{cases} x(t) = 2\sin 2t \\ y(t) = -2\cos 2t \end{cases}$$

$$\begin{cases} x(t) = ch2t \\ y(t) = sh2t \end{cases}$$

Differensial tenglamalar sistemasini Eyler usulida yeching:

$$\begin{cases} x' = y - 2x \\ y' = 3x \end{cases}$$

2 13

$$\begin{cases} x = C_1e^t + C_2e^{-3t} \\ y = 3C_1e^t - C_2e^{-3t} \end{cases}$$

$$\begin{cases} x = C_1e^t + C_2e^{2t} \\ y = 3C_1e^t + 4C_2e^{2t} \end{cases}$$

$$\begin{cases} x = C_1e^t + C_2e^{2t} \\ y = 3C_1e^t - 4C_2e^{2t} \end{cases}$$

$$\begin{cases} x = C_1e^t + C_2e^{-3t} \\ y = 3C_1e^{-t} - C_2e^{3t} \end{cases}$$

Differensial tenglamalar sistemasini Eyler usulida yeching:

$$\begin{cases} x' = 2x + y \\ y' = 3x \end{cases}$$

2 13

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} \\ y = -3C_1 e^{-t} + C_2 e^{3t} \end{cases}$$

$$\begin{cases} x = C_1 e^{t} + C_2 e^{-3t} \\ y = 3C_1 e^{t} - C_2 e^{-3t} \end{cases}$$

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} \\ y = 3C_1 e^{-t} + C_2 e^{3t} \end{cases}$$

$$\begin{cases} x = C_1 e^{t} + C_2 e^{2t} \\ y = 3C_1 e^{t} + 4C_2 e^{2t} \end{cases}$$

Eyler usulida Koshi masalasini yeching:

$$\begin{cases} x' = -y + 2 \\ y' = x + 1, \end{cases} \qquad x(0) = -1,\ y(0) = 0.$$

2 13

$$\begin{cases} x(t) = 2\sin t - 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = 2\sin t + 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -2\sin t - 1 \\ y(t) = 2\cos t - 2 \end{cases}$$

$$\begin{cases} x(t) = \cos t - 1 \\ y(t) = \sin t + 2 \end{cases}$$

Eyler usulida Koshi masalasini yeching:

$$\begin{cases} x' = -y + 2 \\ y' = x + 1, \end{cases} \quad x(0) = 0,\ y(0) = 2.$$

2 13

$$\begin{cases} x(t) = \cos t - 1 \\ y(t) = \sin t + 2 \end{cases}$$

$$\begin{cases} x(t) = \sin t - 1 \\ y(t) = -\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -\cos t + 1 \\ y(t) = -\sin t + 2 \end{cases}$$

$$\begin{cases} x(t) = \sin t \\ y(t) = \cos t + 1 \end{cases}$$

Eyler usulida Koshi masalasini yeching:

$$\begin{cases} x' = -y + 2 \\ y' = x - 1, \end{cases} \quad x(0) = 1,\ y(0) = 0.$$

2 13

$$\begin{cases} x(t) = 2\sin t + 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = 2\sin t - 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -\sin t + 1 \\ y(t) = \cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -2\sin t + 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

Eyler usulida Koshi masalasini yeching:

$$\begin{cases} x' = -y+1 \\ y' = x-2, \end{cases} \quad x(0)=1,\ y(0)=1.$$

2 13

$$\begin{cases} x(t) = -\cos t + 2 \\ y(t) = -\sin t + 1 \end{cases}$$

$$\begin{cases} x(t) = 2\sin t + 1 \\ y(t) = -2\cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -\sin t + 1 \\ y(t) = \cos t + 2 \end{cases}$$

$$\begin{cases} x(t) = -\cos t + 2 \\ y(t) = \sin t + 1 \end{cases}$$

Eyler usulida Koshi masalasini yeching:

$$\begin{cases} x' = -y+1 \\ y' = x-2, \end{cases} \quad x(0)=2,\ y(0)=0.$$

2 13

$$\begin{cases} x(t) = \sin t + 2 \\ y(t) = -\cos t + 1 \end{cases}$$

$$\begin{cases} x(t) = -\sin t + 2 \\ y(t) = -\cos t + 1 \end{cases}$$

$$\begin{cases} x(t) = -\cos t + 2 \\ y(t) = -\sin t + 1 \end{cases}$$

$$\begin{cases} x(t) = \sin t + 1 \\ y(t) = -\cos t + 2 \end{cases}$$

Differensial tenglamalar sistemasini Eyler usulida yeching:

$$\begin{cases} x' = 2x + y \\ y' = 3x + 4y \end{cases}$$

2 13

$$x = C_1 e^{t} + C_2 e^{5t}$$
$$y = -C_1 e^{t} + 3C_2 e^{5t}$$

$$x = C_1 e^{-t} + C_2 e^{5t}$$
$$y = -C_1 e^{-t} + 3C_2 e^{-5t}$$

$$x = C_1 e^{-t} + C_2 e^{5t}$$
$$y = C_1 e^{-t} + 3C_2 e^{-5t}$$

$$x = C_1 e^{t} + C_2 e^{5t}$$
$$y = C_1 e^{t} + 3C_2 e^{5t}$$

Differensial tenglamalar sistemasini Eyler usulida yeching:

$$\begin{cases} x' = -2x + y \\ y' = 3x - 6e^{-2t} \end{cases}$$

2 13

$$\begin{cases} x = C_1 e^{t} + C_2 e^{-3t} + 2e^{-2t} \\ y = -3C_1 e^{t} + C_2 e^{-3t} \end{cases}$$

$$\begin{cases} x = C_1 e^{t} + C_2 e^{-3t} - e^{-2t} \\ y = 3C_1 e^{t} - C_2 e^{-3t} - 3e^{-2t} \end{cases}$$

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} + 2e^{-2t} \\ y = -3C_1 e^{-t} + 2C_2 e^{3t} - 2e^{-2t} \end{cases}$$

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} + 2e^{2t} \\ y = -3C_1 e^{-t} + C_2 e^{3t} \end{cases}$$

Differensial tenglamalar sistemasini Eyler usulida yeching:

$$\begin{cases} x' = 2x + y \\ y' = 3x - 4e^t \end{cases}$$

2 13

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} - e^t \\ y = -3C_1 e^{-t} + C_2 e^{3t} + e^t \end{cases}$$

$$\begin{cases} x = C_1 e^{-t} + C_2 e^{3t} - 2e^t \\ y = -3C_1 e^{-t} + C_2 e^{3t} + 2e^t \end{cases}$$

$$\begin{cases} x = C_1 e^{t} + C_2 e^{-3t} - e^t \\ y = -3C_1 e^{t} + C_2 e^{-3t} + e^t \end{cases}$$

$$\begin{cases} x = C_1 e^{t} + C_2 e^{-3t} - 2e^t \\ y = -3C_1 e^{t} + C_2 e^{-3t} + 2e^t \end{cases}$$

Operatsion hisob yordamida Koshi masalasini yechishning imkoni bormi?

$$x'' - 9x = \frac{1}{t^2} \quad x(0) = 1; \; x'(0) = 1;$$

3 14

yo'q

ha

bo'lishi mumkin

barcha javoblar to'g'ri

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' - 5x' + 6x = 0$$
$$x(0) = 0\,;\;\; x'(0) = 1;$$

3 14

$$e^{3t} - e^{2t}$$

$$e^{4t} - e^{3t}$$

$$2e^{3t} - e^{5t}$$

$$2e^{3t} - te^{2t}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' + 2x' - 15x = 0$$
$$x(0) = 0;\;\; x'(0) = 1;$$

3 14

$$e^{3t} - e^{-5t};$$

$$2(e^{3t} - e^{2t})$$

$$e^{5t} - e^{3t}$$

$$3e^{3t} - 2e^{5t}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' - 5x' + 6x = 0$$
$$x(0) = 0;\;\; x'(0) = 2;$$

3 14

$$2(e^{3t} - e^{2t})$$

$$e^{3t} - e^{2t}$$

$e^{4t} - e^{3t}$

$3e^{3t} - 2e^{2t}$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' + x = 0$

$x(0) = 0\,;\;\; x'(0) = 1;$

3 14

$sint$

$cost$

$2e^{t}$

$e^{3t}sint$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' + x = 2e^{t}$

$x(0) = 0;\;\; x'(0) = 0;$

3 14

$e^{t} - (cost + sint);$

$2(e^{t} - e^{2t}) + cost;$

$e^{t} + sin2t - e^{3t}$

$-2e^{2t} + sint - cos2t$

Operatsion hisob yordamida Koshi masalasini yeching.

$x' - x = 0 \quad x(0) = 1;$

3 14

e^t

$2cos2t;$

$2(e^{3t}cos2t - e^{2t});$

$\frac{31e^{5t}}{29}$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' + x' = 0 \quad x(0) = 0;\ x'(0) = 1$

3 14

$1 - e^{-t}$

$1 - e^{2t}$

$3 - e^{2t}$

$2 - e^{-t}$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' - 2x' + 5x = 0$

$x(0) = 0;\ x'(0) = 2;$

3 14

$e^t sin2t$

$2e^{3t}sint$

$e^{4t}cos2t;$

$e^t - sin2t$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' - 9x = 0$$

$$x(0) = 0;\ \ x'(0) = 1$$

3 14

$$\frac{1}{6}(\,e^{3t} - e^{-3t})$$

$$2e^{t} - 3e^{3t}$$

$$\frac{1}{2}(\,e^{3t} - e^{-3t})$$

$$3e^{3t} - 2e^{-3t}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' - 9x' = 0$$

$$x(0) = 0;\ \ x'(0) = 1;$$

3 14

$$\frac{1}{9}(e^{9t} - 1)$$

$$\frac{1}{9}e^{-3t}sint + e^{9t}$$

$$\frac{2}{9}e^{3t}cos9t + \ e^{-9t};$$

$$\frac{1}{9}e^{-3t} + cos9t$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' + 2x' = e^{t} \quad x(0) = 0;\ \ x'(0) = 1;$$

3 14

$$\frac{e^{t}}{3} - \frac{e^{-2t}}{3}$$

$$\frac{2}{3}(e^{3t} - e^{2t})$$

$$\frac{e^{4t}-e^{3t}}{3}$$

$$e^{3t}-\frac{2e^{2t}}{3}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x''+4x'+8x=0$$

$$x(0)=0\,;\;\; x'(0)=2;$$

3 14

$$e^{-2t}sin2t$$

$$e^{-2t}cos2t$$

$$2e^{t}cos2t$$

$$e^{3t}sin2t$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x''-8x'=2e^{2t}\quad x(0)=0;\;\; x'(0)=1;$$

3 14

$$\frac{e^{8t}}{6}-\frac{e^{2t}}{6}$$

$$\frac{1}{6}(e^{3t}-e^{2t})$$

$$\frac{e^{4t}-e^{3t}}{8}$$

$$\frac{e^{8t}}{6}-\frac{e^{2t}}{6}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' + 4x' = 0$$

$$x(0) = 0\,;\;\; x'(0) = 1;$$

3 14

$$\frac{1}{4} - \frac{e^{-4t}}{4}$$

$$\frac{1}{4}(e^{4t} - e^{2t})$$

$$\frac{1}{4}(e^{4t} - e^{4t})$$

$$2e^{t}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' - 4x' + 5x = 0 \quad x(0) = 0;\;\; x'(0) = 1;$$

3 14

$$e^{2t}sint$$

$$e^{3t}cost$$

$$-e^{5t}\sin 2t$$

$$e^{4t} - e^{3t}$$

Operatsion hisob yordamida Koshi masalasini yeching.

$$x'' + 5x' + 6x = 0$$

$$x(0) = 0\,;\;\; x'(0) = 1;$$

3 14

$$e^{-2t} - e^{-3t};$$

$$e^{4t} - e^{3t}$$

$\frac{e^{-2t}-e^{-3t}}{3}$;

$2e^{2t} - sin3t$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' + 4x' + 5x = 0 \quad x(0) = 0;\ x'(0) = -2;$

3 14

$-2e^{-2t}sint$;

$e^{4t}cos3t$

$-e^{5t}$sin2t

$e^{2t}sint$

Operatsion hisob yordamida Koshi masalasini yeching.

$x' - 5x = 0$

$x(0) = 3$;

3 14

$3e^{5t}$

$e^{5t} + sint;$

$2e^{3t}$

$e^{3t} - cos3t$

Operatsion hisob yordamida Koshi masalasini yeching.

$x'' + 5x' = 0 \quad x(0) = 0;\ x'(0) = 5;$

3 14

$1 - e^{-5t}$

$$cht - e^{2t}$$

$$sin2t - 1$$

$$1 - cos5t$$