Name : _____ Score : _____

Teacher : _____ Date : _____

Separable Equations

Find the general solution of each equation.

1) $\frac{dy}{dx} = \frac{4e^{x}}{4y}$

2) $\frac{dy}{dx} = 2xe^{y}$

3) $\frac{dy}{dx} = \frac{6x}{y}$

4) $\frac{dy}{dx} = \frac{3}{13\sin(y)}$

5) $\frac{dy}{dx} = \frac{2}{3\sec^{2}(y)}$

6) $\frac{dy}{dx} = 4y(x^{2} + 3)$

7) $\frac{dy}{dx} = \frac{3}{\sec^{2}(y)}$

8) $\frac{dy}{dx} = y(3x + 9)$

9) $\frac{dy}{dx} = \frac{x^{4}}{3y^{3}}$

10) $\frac{dy}{dx} = \frac{x^{2} - 5}{y^{2}}$

11) $\frac{dy}{dx} = \frac{e^{4x}}{y^{3}}$

12) $\frac{dy}{dx} = \frac{e^{3x}}{4y}$

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Separable Equations

Find the general solution of each equation.

13) $\frac{dy}{dx} = \frac{x^4}{e^{4y}}$

14) $\frac{dy}{dx} = e^{x-4y}$

15) $\frac{dy}{dx} = \frac{x - 10}{y^3}$

16) $\frac{dy}{dx} = e^{2x+y}$

17) $\frac{dy}{dx} = \frac{4x}{e^{3y}}$

18) $\frac{dy}{dx} = e^{2x-y}$

19) $\frac{dy}{dx} = 14e^{x-y}$

20) $\frac{dy}{dx} = e^{x+3y}$

21) $\frac{dy}{dx} = \frac{2}{\sin(y)}$

22) $\frac{dy}{dx} = \frac{-10x}{y}$

23) $\frac{dy}{dx} = 11e^{x+y}$

24) $\frac{dy}{dx} = \frac{x}{12y}$

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Separable Equations

Find the general solution of each equation.

1) $\frac{dy}{dx} = \frac{4e^x}{4y}$

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

2) $\frac{dy}{dx} = 2xe^y$

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

3) $\frac{dy}{dx} = \frac{6x}{y}$

$y = \sqrt{6x^2 + C}$

4) $\frac{dy}{dx} = \frac{3}{13\sin(y)}$

$y = \cos^{-1}(\frac{-3}{13}x + C)$

5) $\frac{dy}{dx} = \frac{2}{3\sec^2(y)}$

$y = \tan^{-1}(\frac{2}{3}x + C)$

6) $\frac{dy}{dx} = 4y(x^2 + 3)$

$y = Ce^{(\frac{4}{3}x^3 + 12x)}$

7) $\frac{dy}{dx} = \frac{3}{\sec^2(y)}$

$y = \tan^{-1}(3x + C)$

8) $\frac{dy}{dx} = y(3x + 9)$

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

9) $\frac{dy}{dx} = \frac{x^4}{3y^3}$

$y = \sqrt[4]{\frac{4}{15}x^5 + C}$

10) $\frac{dy}{dx} = \frac{x^2 - 5}{y^2}$

$y = \sqrt[3]{x^3 - 15x + C}$

11) $\frac{dy}{dx} = \frac{e^{4x}}{y^3}$

$y = \sqrt[4]{(e^{4x} + C)}$

12) $\frac{dy}{dx} = \frac{e^{3x}}{4y}$

$y = \sqrt{\frac{1}{6}(e^{3x} + C)}$

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Separable Equations

Find the general solution of each equation.

13) $\frac{dy}{dx} = \frac{x^4}{e^{4y}}$

$y = \frac{1}{4}\ln(\frac{4}{5}x^5 + C)$

14) $\frac{dy}{dx} = e^{x-4y}$

$y = \frac{1}{4}\ln(4e^x + C)$

15) $\frac{dy}{dx} = \frac{x - 10}{y^3}$

$y = \sqrt[4]{2x^2 - 40x + C}$

16) $\frac{dy}{dx} = e^{2x+y}$

$y = -\ln(\frac{-1}{2}e^{2x} - C)$

17) $\frac{dy}{dx} = \frac{4x}{e^{3y}}$

$y = \frac{1}{3}\ln(6x^2 + C)$

18) $\frac{dy}{dx} = e^{2x-y}$

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

19) $\frac{dy}{dx} = 14e^{x-y}$

$y = \ln(14e^x + C)$

20) $\frac{dy}{dx} = e^{x+3y}$

$y = \frac{-1}{3}\ln(-3e^x - C)$

21) $\frac{dy}{dx} = \frac{2}{\sin(y)}$

$y = \cos^{-1}(-2x + C)$

22) $\frac{dy}{dx} = \frac{-10x}{y}$

$y = \sqrt{-10x^2 + C}$

23) $\frac{dy}{dx} = 11e^{x+y}$

$y = -\ln(-11e^x - C)$

24) $\frac{dy}{dx} = \frac{x}{12y}$

$y = \sqrt{12x^2 + C}$