Name : _____ Score : _____

Teacher : _____ Date : _____

Separable Equations

Find the general solution of each equation.

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

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

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

4) $\frac{dy}{dx} = 4xe^{2y}$

5) $\frac{dy}{dx} = 4xe^{y}$

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

7) $\frac{dy}{dx} = y(4x - 6)$

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

9) $\frac{dy}{dx} = \frac{x}{5y}$

10) $\frac{dy}{dx} = \frac{x - 2}{y^4}$

11) $\frac{dy}{dx} = \frac{-x}{4y}$

12) $\frac{dy}{dx} = \frac{3x}{e^{2y}}$

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Separable Equations

Find the general solution of each equation.

13) $\frac{dy}{dx} = \frac{x^2}{4y^3}$

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

15) $\frac{dy}{dx} = xe^{4y}$

16) $\frac{dy}{dx} = \frac{x^2 + 3}{y^2}$

17) $\frac{dy}{dx} = \frac{15x}{y}$

18) $\frac{dy}{dx} = 3y(x^2 - 12)$

19) $\frac{dy}{dx} = \frac{e^{2x}}{y^4}$

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

21) $\frac{dy}{dx} = 2y(x - 6)$

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

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

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

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Separable Equations

Find the general solution of each equation.

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

$y = \ln(\frac{1}{12}x^4 + C)$

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

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

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

$y = \sqrt{-15x^2 + C}$

4) $\frac{dy}{dx} = 4xe^{2y}$

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

5) $\frac{dy}{dx} = 4xe^{y}$

$y = -\ln(\frac{-4x^2}{2} + C)$

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

$y = \cos^{-1}(-4x + C)$

7) $\frac{dy}{dx} = y(4x - 6)$

$y = Ce^{(2x^2 - 6x)}$

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

$y = \ln(4e^x + C)$

9) $\frac{dy}{dx} = \frac{x}{5y}$

$y = \sqrt{5x^2 + C}$

10) $\frac{dy}{dx} = \frac{x - 2}{y^4}$

$y = \sqrt[5]{\frac{5}{2}x^2 - 10x + C}$

11) $\frac{dy}{dx} = \frac{-x}{4y}$

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

12) $\frac{dy}{dx} = \frac{3x}{e^{2y}}$

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

Name : _____ Score : _____

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Separable Equations

Find the general solution of each equation.

13) $\frac{dy}{dx} = \frac{x^2}{4y^3}$

$y = \sqrt[4]{\frac{1}{3}x^3 + C}$

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

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

15) $\frac{dy}{dx} = xe^{4y}$

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

16) $\frac{dy}{dx} = \frac{x^2 + 3}{y^2}$

$y = \sqrt[3]{x^3 + 9x + C}$

17) $\frac{dy}{dx} = \frac{15x}{y}$

$y = \sqrt{15x^2 + C}$

18) $\frac{dy}{dx} = 3y(x^2 - 12)$

$y = Ce^{(x^3 - 36x)}$

19) $\frac{dy}{dx} = \frac{e^{2x}}{y^4}$

$y = \sqrt[5]{\frac{5}{2}(e^{2x} + C)}$

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

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

21) $\frac{dy}{dx} = 2y(x - 6)$

$y = Ce^{(x^2 - 12x)}$

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

$y = \frac{1}{3}\ln(\frac{3}{4}x^4 + C)$

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

$y = \sqrt{\frac{2}{9}(e^{3x} + C)}$

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

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