1. (1 point) Select the following which are separable equations.

- A. $y'y = 2$

- B. $\frac{dy}{dx} = e^{xy}$

- C. $y' = xe^y + ye^x$

- D. $\frac{dy}{dx} = x\cos(y) + x$

- E. $\frac{dy}{dx} = e^{e+2y}$

- F. $y' = 2y$

- G. $x\frac{dy}{dx} - y = 0$

- H. $\frac{dy}{dx} + \sin(xy) = 0$

- I. $y' = x + y$

- J. None of the above

Answer(s) submitted:

- •

(incorrect)

2. (1 point) Find the general solution of the differential equation

$$y' = e^{5x} - 3x.$$

2)

(Don't forget +C.)

$y = $ _____ help (formulas)

Answer(s) submitted:

- •

(incorrect)

3. (1 point) Using separation of variables, solve the differential equation,

$$(10 + x^8)\frac{dy}{dx} = \frac{x^7}{y}.$$

Use **C** to represent the arbitrary constant.

$y^2 = \frac{1}{4}\ln|10 + x^8| + C$

Answer(s) submitted:

- •

(incorrect)

4. (1 point) Evaluate the indefinite integral using substitution. (Use C for the constant of integration.)

$$\int \frac{x^2}{\sqrt{x^3 - 1}}\,dx = \frac{2}{3}\sqrt{x^3 - 1} + C$$

Answer(s) submitted:

- •

(incorrect)

5. (1 point) Evaluate the following indefinite integral.

$$\int xe^{2x}\,dx = \frac{1}{4}(e^{2x}\cdot 2x - e^{2x}) + C.$$

Answer(s) submitted:

- •

(incorrect)

6. (1 point) Find the general solution of the differential equation

$$y' = e^{6x} - 2x.$$

(Don't forget +C.)

$y = \frac{1}{6}e^{6x} - 2x + C$ help (formulas)

Answer(s) submitted:

- •

(incorrect)

If $f'(x) = g(x)$ then $f(x) = \int g(x)\,dx$

$$y = \int e^{5x} - 3x\,dx$$

$$= \frac{1}{5}e^{5x} - \frac{3x^2}{2} + C$$

1

$$(10 + x^8)\frac{dy}{dx} = \frac{x^7}{y}.$$

$$(10+x^8)\frac{dy}{dx} = \frac{x^7}{y}$$

$$\rightarrow \frac{dy}{dx} = \frac{x^7}{y(10+x^8)}$$

$$\rightarrow y\,dy = \frac{x^7\,dx}{(10+x^8)}$$

* Integrate Both Sides *

$$\int y\,dy = \int \frac{x^7\,dx}{(10+x^8)}$$

$$\rightarrow \frac{y^2}{2} = \frac{1}{7}78(10+x^8) + C$$

$$\rightarrow y^2 = \frac{2(78(10+x^8))}{7} + \frac{2C}{7}$$

$$\rightarrow y^2 = \frac{156(10+x^8)}{7} + C$$