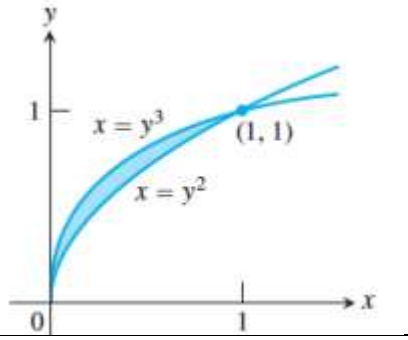
Review Sections 6.1 & 7.1 Name: _____

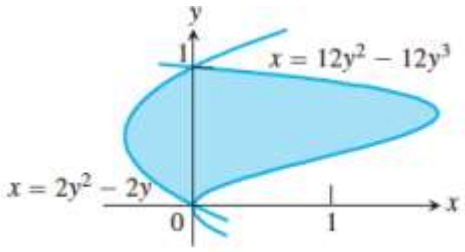
1. Find a general solution for $\frac{dy}{dx} = 5e^{-x/2}$

2. Solve the differential equation: $\frac{dy}{dx} = \frac{\sqrt{x}}{3y}$

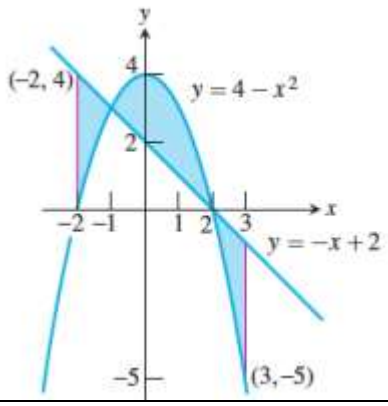
3. Find the area between the two curves



4. Find the area between the two curves



5. Find the area bounded by the curves



6. Find the area of the region(s) enclosed by the graphs of $x - y^2 = 0$ and $x + 2y^2 = 3$

Part II: Find an equation for y in terms of x

1. $\frac{dy}{dx} = \frac{7x^2}{y^3}$; y(3) = 2

2. $\frac{dy}{dx} = 5x^2y$; y(0) = 6

3. $\frac{dy}{dx} = \frac{1}{y + x^2y}$; y(0) = 2

4. $\frac{dy}{dx} = \frac{e^x}{y^2}$; y(0) = 1

5. $\frac{dy}{dx} = \frac{y^2}{x^3}$; y(1) = 2

6. $\frac{dy}{dx} = \frac{\sin x}{\cos y}$; y(0) = 3π/2

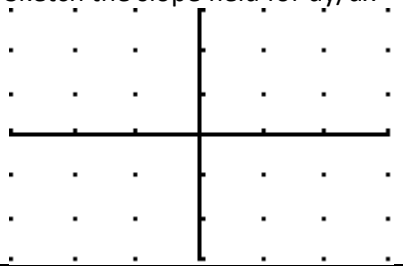
7. Consider the region in Quadrant I bounded by the functions $y = x^3$ and $y = 4x$. Find a value of k so the line $x = k$ divides the region into two regions of equal area.

8) Which of the following gives the area of the region between the graphs of $y = x^2$ and $y = -x$ from $x = 0$ to $x = 3$?

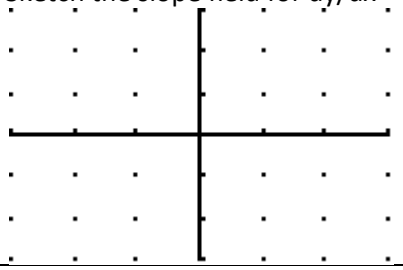
A 2 **B** 9/2 **C** 13/2 **D** 13 **E** 27/2

8.

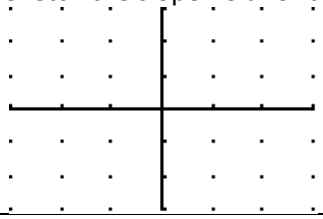
9. Sketch the slope field for dy/dx = 2x



10. Sketch the slope field for dy/dx = -x/y



11. Sketch the slope field for dy/dx = x/y



Answers – Part I

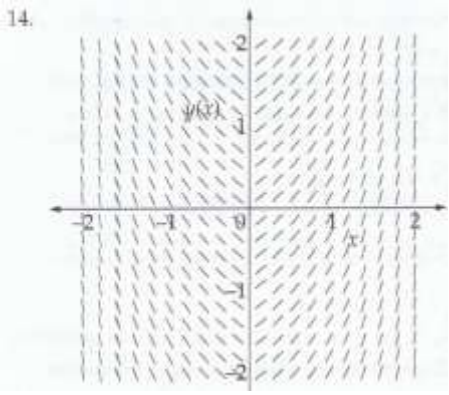
1. $y = -\frac{5}{x}e^{-\frac{x}{2}} + C$
2. $y = \sqrt{\frac{4}{9}x^{\frac{3}{2}} + C}$
3. 1/12
4. 4/3
5. 49/6
6. 4

Answers – Part II

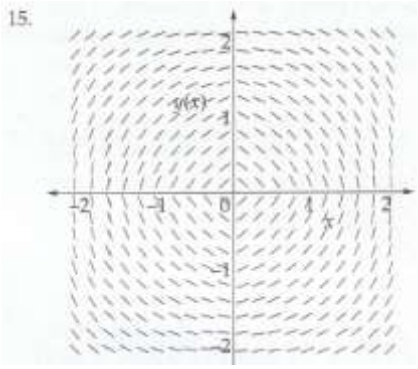
1. $y = \sqrt[4]{\frac{28x^3}{3} - 236}$
2. $y = 6e^{\frac{5x^3}{3}}$
3. $y = \sqrt{2\arctan(x+4)}$

4. $y = \sqrt[3]{3e^x - 2}$
5. $Y=2x^2$
6. $Y= \sin^{-1}(-\cos x)$
7. 1.0823
8. E

14.



15.



16.