Due: Mon Sep 29 2014 11:59 PM EDT

Question | 1 | 2 | 3 | 4 | 5 | 6 | 7

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1. Question Details SCalcET6 3.5.003. [1291663]

Find y' by implicit differentiation.

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

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

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2. Question Details SCalcET6 3.5.004. [1290357]

Find y' by implicit differentiation.

$\cos(x) + \sqrt{y} = 8$

y' = $2\sqrt{y}\sin(x)$

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3. Question Details SCalcET6 3.5.025. [1817337]

Use implicit differentiation to find an equation of the tangent line to the curve at the given point.

$3x^2 + xy + 3y^2 = 7$, (1, 1) (ellipse)

y = $-x + 2$

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4. Question Details SCalcET6 3.5.026. [1816591]

Use implicit differentiation to find an equation of the tangent line to the curve at the given point.

$x^2 + 2xy - y^2 + x = 17$, (3, 5) (hyperbola)

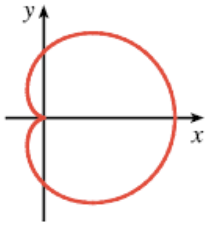
y = $\frac{17}{4}x - \frac{31}{4}$

5. Question Details SCalcET6 3.5.027. [1291725]

Use implicit differentiation to find an equation of the tangent line to the cardioid at the point (0, 0.5).

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

$y =$ $x + 0.5$

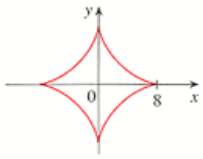


6. Question Details SCalcET6 3.5.028. [1290250]

Find an equation of the tangent line to the astroid at the $(3\sqrt{3}, 1)$.

$x^{2/3} + y^{2/3} = 4$

$y =$ $-\left(\frac{1}{\sqrt{3}}\right) \cdot x + 4$



7. Question Details SCalcET6 3.5.032. [1290676]

(a) The curve with equation $y^2 = x^3 + 3x^2$ is called the Tschirnhausen cubic. Find an equation of the tangent line to this curve at the point (1, 2).

$y =$ $\left(\frac{9}{4}\right) \cdot x - \left(\frac{1}{4}\right)$

(b) At what points does this curve have a horizontal tangent?

(, -2 , , 2) (point with largest y-coordinate)

(, -2 , , -2) (point with smallest y-coordinate)

(c) Illustrate parts (a) and (b) by graphing the curve and the tangent lines on a common screen.

Assignment Details

Name (AID): **MATH 141 HW 07 (6380168)**
Submissions Allowed: **100**
Category: **Homework**
Code:
Locked: **No**
Author: **Blanco-Silva, Francisco (blanco@math.sc.edu)**
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