1. (1 pt) If $5x^2+3x+xy=5$ and $y(5)=-27$, find $y'(5)$ by implicit differentiation.

$y'(5)=$ _____

Answer(s) submitted:

- -26/5

(correct)
Correct Answers:

- -(2*5*5+3+-27)/5

2. (1 pt) For the equation given below, evaluate y' at the point $(-1,1)$.

$$(6x-y)^4+3y^3=2404.$$

y' at $(-1,1)$ = _____

Answer(s) submitted:

- 8232/1381

(correct)
Correct Answers:

- 5.96089790007241

3. (1 pt) Find y' by implicit differentiation. Match the expressions defining y implicitly with the letters labeling the expressions for y'.

___1. $7x\cos y+3\cos 2y=4\sin y$
___2. $7x\sin y+3\cos 2y=4\cos y$
___3. $7x\sin y+3\sin 2y=4\cos y$
___4. $7x\cos y+3\sin 2y=4\sin y$

A. $\dfrac{7\sin y}{-7x\cos y-6\cos 2y-4\sin y}$
B. $\dfrac{7\cos y}{7x\sin y-6\cos 2y+4\cos y}$
C. $\dfrac{7\sin y}{6\sin 2y-7x\cos y-4\sin y}$
D. $\dfrac{7\cos y}{7x\sin y+6\sin 2y+4\cos y}$

Answer(s) submitted:

- D
- C
- A
- B

(correct)
Correct Answers:

- D
- C
- A
- B

4. (1 pt) Find dy/dx by implicit differentation:

$$9+9x=\sin(xy^3)$$

Answer(s) submitted:

- -(cos(xy^3)y^3 - 9)/(3xcos(xy^3)y^2)

(correct)
Correct Answers:

- y*(y**(-3)*9-cos(x*y**3))/(3*x*cos(x*y**3))

5. (1 pt) Use implicit differentiation to find the slope of the tangent line to the curve

$$4xy^3+3xy=7$$

at the point $(1,1)$.
$m=$ _____
Answer(s) submitted:

- -7/15

(correct)
Correct Answers:

- -0.466666666666667

6. (1 pt) Find the slope of the tangent line to the curve

$$6\sin(x)+3\cos(y)-6\sin(x)\cos(y)+x=6\pi$$

at the point $(6\pi,5\pi/2)$.

Answer(s) submitted:

- 7/3

(correct)
Correct Answers:

- 2.33333333333333

7. (1 pt) Find the equation of the tangent line to the curve (a lemniscate) $2\left(x^2+y^2\right)^2=25\left(x^2-y^2\right)$ at the point $(-3,-1)$. Write the equation of the tangent line in the form $y=mx+b$.
$y=$ _____

Answer(s) submitted:

- (-9x/13) - (40/13)

(correct)
Correct Answers:

- -0.692308*x + -3.07692

8. (1 pt) Let $x^3 + y^3 = 126$. Find $y''(x)$ at the point $(5, 1)$.

$y''(5) =$ _____

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Answer(s) submitted:

- `-1260`

(correct)

Correct Answers:

- `-2*5*126`