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1. (1 pt) Let $h(x) = 2 - 4x^3$,
$h'(2) =$ _____
Use this to find the equation of the tangent line to the curve $y = 2 - 4x^3$ at the point $(2, -30)$ and write your answer in the form:
$y = mx + b$, where m is the slope and b is the y-intercept.

_____

Answer(s) submitted:

- -48
- y=-48x+66

(correct)
Correct Answers:

- -48
- y = -48*x + 66

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2. (1 pt) If a ball is thrown straight up into the air with an initial velocity of 65 ft/s, it height in feet after t second is given by $y = 65t - 16t^2$. Find the average velocity for the time period begining when $t = 1$ and lasting
(i) 0.1 seconds _____

(ii) 0.01 seconds _____

(iii) 0.001 seconds _____

Finally based on the above results, guess what the instantaneous velocity of the ball is when $t = 1$. _____

Answer(s) submitted:

- 31.4
- 32.84
- 33
- 49

(correct)
Correct Answers:

- 31.4
- 32.84
- 32.984
- 33

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3. (1 pt) Find an equation of the tangent line to the curve $y = 6 - 2x - 3x^2$ at $(1, 1)$.

$y =$ _____
Answer(s) submitted:

- -8x + 9

(correct)
Correct Answers:

- -8*x+1+8

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4. (1 pt) If $f(x) = 5x^2 - 8x - 21$, find $f'(a)$.

Answer: _____

Answer(s) submitted:

- 10a - 8

(correct)
Correct Answers:

- 2*5*a-8

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5. (1 pt) Let

$$f(x) = \begin{cases} x \sin \frac{-6}{x} & \text{if } x \neq 0, \\ 0 & \text{if } x = 0 \end{cases}$$

Determine whether or not $f'(0)$ exists.

Your answer is (enter *Yes* or *No*): _____

Note: You only have one chance to enter your answer.

Answer(s) submitted:

- No

(correct)
Correct Answers:

- NO

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6. (1 pt) If

$$f(x) = \begin{cases} 5x^5 \sin \frac{1}{x} & \text{if } x \neq 0, \\ 0 & \text{if } x = 0 \end{cases}$$

determine whether or not $f'(0)$ exists.

Your answer is (enter *Yes* or *No*): _____
Note: You only have one chance to enter your answer.

Answer(s) submitted:

- Yes

(correct)
Correct Answers:

- YES

7. (1 pt) The limit

$$\lim_{h\to 0}\frac{\sqrt{36+h}-6}{h}$$

represents the derivative of some function $f(x)$ at some number a. Find f and a.

$f(x)$ = _____

a = _____

Answer(s) submitted:

- sqrt(x)
- 36

(correct)

Correct Answers:

- sqrt(x)

8. (1 pt) The limit

$$\lim_{h\to 0}\frac{(5+h)^2-25}{h}$$

represents the derivative of some function $f(x)$ at some number a. Find f and a.

$f(x)$ = _____

a = _____

Answer(s) submitted:

- x^2

(correct)

Correct Answers:

- x^2 at a = 5