



Practice with Derivatives

Please choose the best answer to each of the following questions.

1. $\frac{d}{dx} \left(\frac{x}{5x^2+1} \right)$

$\frac{1-5x^2}{(5x^2+1)^2}$

$15x^2 + 1$

$\frac{5x^2-x+1}{(5x^2+1)^2}$

$\frac{1}{5x^2+1}$

2. $x^2 + y^2 = 7$ There is a vertical tangent at

$x = -7$

$y = 7$

$x = \sqrt{7}$

$y = -\sqrt{7}$

3. $g(x) = 5(x + 3)^2$ Where is the horizontal tangent?

$$x = -3$$

$$y = 0$$

$$x = -2$$

$$y = 3$$

4. $g(r) = 3r^2 - 1$. $g'(r) =$

$$6r$$

$$2r$$

$$3r^2$$

$$2r^3$$

5. $g(x) = -(x - 5)^2$ At $x = 6$ the tangent line is

$$g = -x - 25$$

$$g = -2x - 25$$

$$g = 2x - 1$$

$$g = 6x + 25$$

6. $Q(x) = x^3 - 8x$ at $x = -2$, slope =

$$4$$

$$8$$

$$-20$$

$$-24$$



7. $g(t) = \frac{t^2}{3}$ a = slope of secant connecting $(2, g(2))$
and $(5, g(5))$ $g'(2)$ is

$< a$

$> a$

$= a$

$= \frac{2a}{3}$

8. $g(x) = \frac{x^2}{4} - 3$. $g'(3) =$

$-\frac{3}{4}$

6

$\frac{3}{2}$

2

-3

9. $f(t) = \frac{5}{t^2}$, $f(t)$ is not continuous at

-5

0

-1

5

10. Distance = $2t^2 - 7t + 4$ when $t = 3.5$, speed =

4

7

6.5

0

