

Day 1

Use the limit process to find the slope of the graph of the function at the specified point.

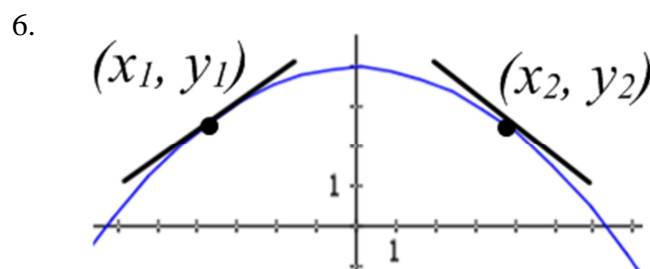
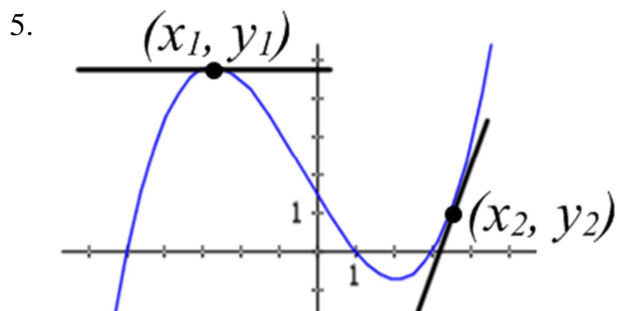
1. $g(x) = 4 - 3x$ at $(2, -2)$

2. $h(x) = 2x + 5$ at $(-4, -3)$

3. $g(x) = x^2 - 2x$ at $(3, 3)$

4. $f(x) = 10x - 2x^2$ at $(1, 8)$

Use the graphs below to estimate the slope at the points (x_1, y_1) and (x_2, y_2) .



Day 2

Use the limit process to find the slope of the graph of the function at the specified point.

7. $h(x) = \frac{6}{x}$ at $(3, 2)$

8. $f(x) = \sqrt{x+10}$ at $(-6, 2)$

9. $h(x) = 3 + \frac{2}{3}x$

10. $f(x) = 5 - \frac{2}{3}x$

11. $f(x) = x^2 + x - 3$

12. $f(x) = x^2 - 5$

13. $f(x) = \frac{1}{x-1}$

14. $f(x) = \frac{1}{x^2}$

15. $f(x) = \sqrt{x+4}$

16. $f(x) = \frac{4}{\sqrt{x}}$

Day 3

17. Find the derivative of $f(x) = \sqrt{x+8}$. Show all work.

18. Find the derivative of $f(x) = 2 - 3x^2$ and use it to find the slope of $f(x)$ at $(3, -25)$ and $(0, 2)$.

Find the equation of the tangent line to the given function at the given point.

19. $f(x) = \frac{2}{x}$ when $x = -2$

20. $f(x) = x^2 + 2x - 1$ at $(1, 2)$

21. $f(x) = \sqrt{x}$ at $(1, 1)$

22. $f(x) = \frac{6}{x+2}$ when $x = 0$

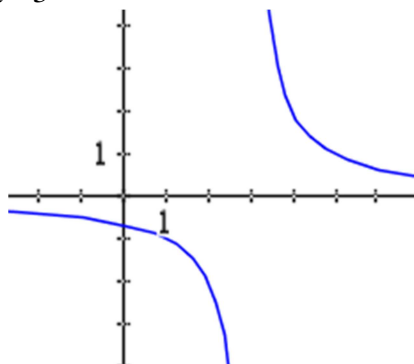
23. Sketch a function with the given characteristics.

$$f(0) = 2$$

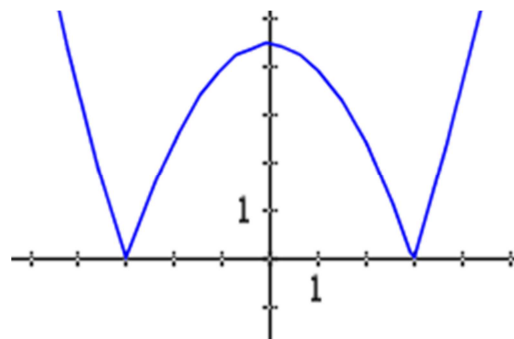
$$f'(x) = -3 \text{ for } -\infty < x < \infty$$

Find where (x-values) each function is differentiable.

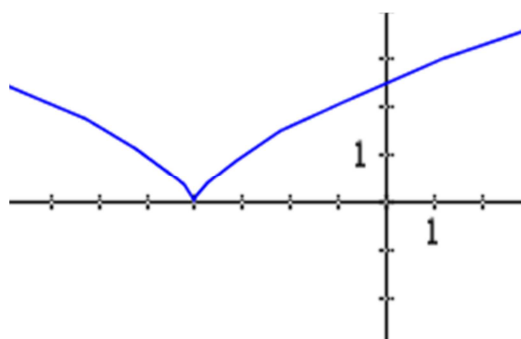
24. $f(x) = \frac{2}{x-3}$



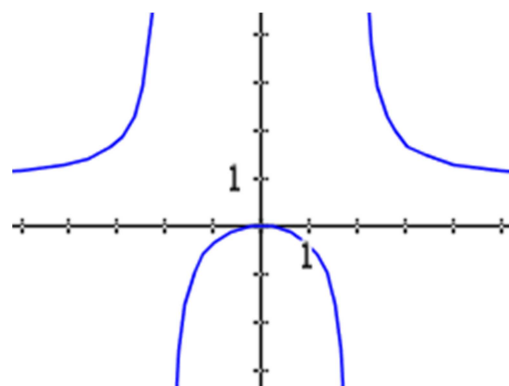
25. $f(x) = \frac{1}{2}|x^2 - 9|$



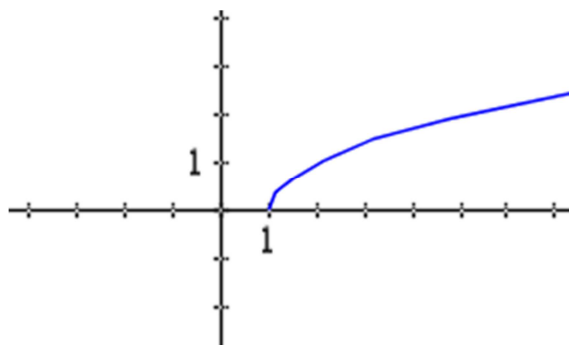
26. $f(x) = (x+4)^{2/3}$



27. $f(x) = \frac{x^2}{x^2 - 4}$



28. $f(x) = \sqrt{x-1}$



29. $f(x) = \begin{cases} x^2 - 4, & x < 0 \\ 4 - x^2, & x > 0 \end{cases}$

