

PRACTICE PROBLEM SET 8

Now try these problems. The answers are in Chapter 21.

1. Find the equation of the tangent to the graph of $y = 3x^2 - x$ at $x = 1$.
2. Find the equation of the tangent to the graph of $y = x^3 - 3x$ at $x = 3$.
3. Find the equation of the normal to the graph of $y = \sqrt{8x}$ at $x = 2$.
4. Find the equation of the tangent to the graph of $y = \frac{1}{\sqrt{x^2 + 7}}$ at $x = 3$.
5. Find the equation of the normal to the graph of $y = \frac{x+3}{x-3}$ at $x = 4$.
6. Find the equation of the tangent to the graph of $y = 4 - 3x - x^2$ at $(0, 4)$.
7. Find the equation of the tangent to the graph of $y = 2x^3 - 3x^2 - 12x + 20$ at $x = 2$.
8. Find the equation of the tangent to the graph of $y = \frac{x^2 + 4}{x - 6}$ at $x = 5$.
9. Find the equation of the tangent to the graph of $y = \sqrt{x^3 - 15}$ at $(4, 7)$.
10. Find the equation of the tangent to the graph of $y = (x^2 + 4x + 4)^2$ at $x = -2$.
11. Find the values of x where the tangent to the graph of $y = 2x^3 - 8x$ has a slope equal to the slope of $y = x$.
12. Find the equation of the normal to the graph of $y = \frac{3x+5}{x-1}$ at $x = 3$.
13. Find the values of x where the normal to the graph of $(x-9)^2$ is parallel to the y -axis.
14. Find the coordinates where the tangent to the graph of $y = 8 - 3x - x^2$ is parallel to the x -axis.
15. Find the values of a , b , and c where the curves $y = x^2 + ax + b$ and $y = cx + x^2$ have a common tangent line at $(-1, 0)$.