Tangent Lines

For each problem, find the equation of the line tangent to the function at the given point. Your answer should be in slope-intercept form.

1) \( y = x^3 - 3x^2 + 2 \) at \((3, 2)\)

2) \( y = -\frac{5}{x^2 + 1} \) at \((-1, -\frac{5}{2})\)

3) \( y = x^3 - 2x^2 + 2 \) at \((2, 2)\)

4) \( y = -\frac{3}{x^2 - 25} \) at \((-4, \frac{1}{3})\)

5) \( y = -\frac{3}{x^2 - 4} \) at \((1, 1)\)

6) \( y = (5x + 5)^{\frac{1}{2}} \) at \((4, 5)\)

7) \( y = \ln(-x) \) at \((-2, \ln 2)\)

8) \( y = -2\tan(x) \) at \((-\pi, 0)\)
Tangent Lines

For each problem, find the equation of the line tangent to the function at the given point. Your answer should be in slope-intercept form.

1) \(y = x^3 - 3x^2 + 2\) at \((3, 2)\)

\[ y = 9x - 25 \]

2) \(y = -\frac{5}{x^2 + 1}\) at \((-1, -\frac{5}{2})\)

\[ y = -\frac{5}{2}x - 5 \]

3) \(y = x^3 - 2x^2 + 2\) at \((2, 2)\)

\[ y = 4x - 6 \]

4) \(y = -\frac{3}{x^2 - 25}\) at \((-4, \frac{1}{3})\)

\[ y = -\frac{8}{27}x - \frac{23}{27} \]

5) \(y = -\frac{3}{x^2 - 4}\) at \((1, 1)\)

\[ y = \frac{2}{3}x + \frac{1}{3} \]

6) \(y = (5x + 5)^{\frac{1}{2}}\) at \((4, 5)\)

\[ y = \frac{1}{2}x + 3 \]

7) \(y = \ln(-x)\) at \((-2, \ln 2)\)

\[ y = -\frac{1}{2}x + \ln 2 - 1 \]

8) \(y = -2\tan(x)\) at \((-\pi, 0)\)

\[ y = -2x - 2\pi \]