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) $y = -\dfrac{5}{x^2 + 1}$ at $\left(-1, -\dfrac{5}{2}\right)$

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

4) $y = -\dfrac{3}{x^2 - 25}$ at $\left(-4, \dfrac{1}{3}\right)$

5) $y = -\dfrac{3}{x^2 - 4}$ 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 $(-\pi, 0)$

Name_____
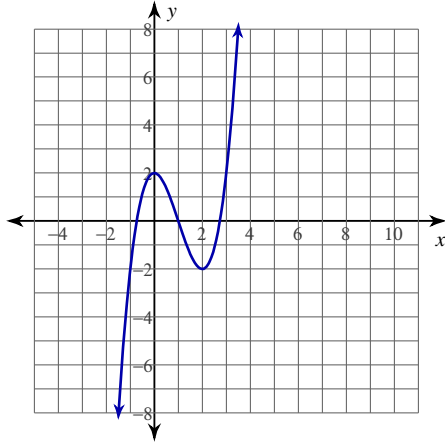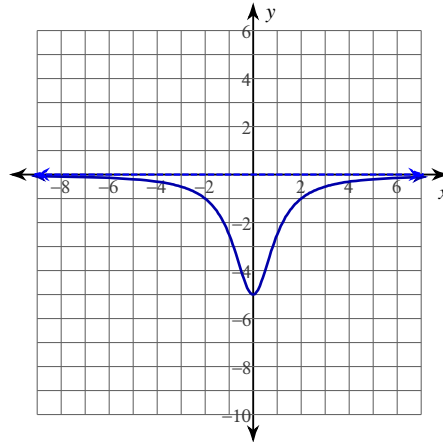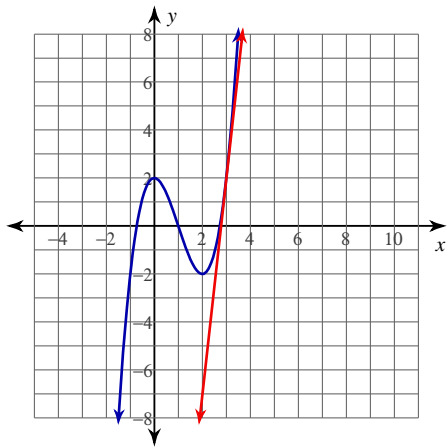
Tangent Lines
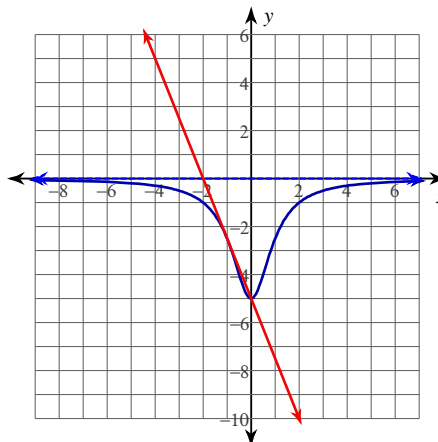
Date_____ Period_____

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) $y = -\dfrac{5}{x^2 + 1}$ at $\left(-1, -\dfrac{5}{2}\right)$

$y = -\dfrac{5}{2}x - 5$

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

$y = 4x - 6$

4) $y = -\dfrac{3}{x^2 - 25}$ at $\left(-4, \dfrac{1}{3}\right)$

$y = -\dfrac{8}{27}x - \dfrac{23}{27}$

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

$y = \dfrac{2}{3}x + \dfrac{1}{3}$

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

$y = \dfrac{1}{2}x + 3$

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

$y = -\dfrac{1}{2}x + \ln 2 - 1$

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

$y = -2x - 2\pi$