Name_____

Horizontal Tangents

Date_____ Period_____

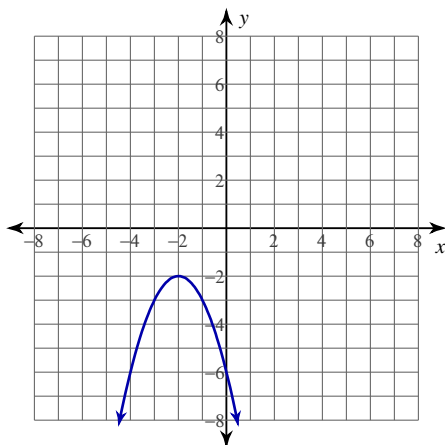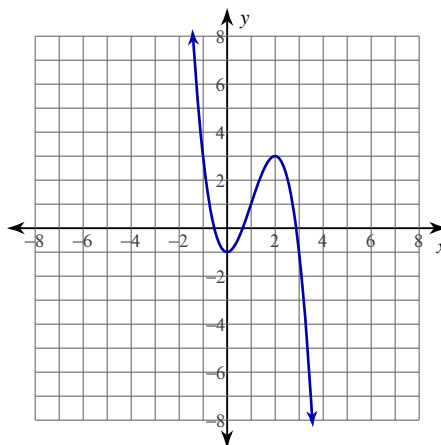**For each problem, find the points where the tangent line to the function is horizontal.**

1) $y = -x^2 - 4x - 6$

2) $y = -x^3 + 3x^2 - 1$

3) $y = -x^3 + x^2 - 2$

4) $y = \dfrac{1}{x^2 - 1}$

For each problem, find the points where the tangent line to the function is horizontal. Indicate if no horizontal tangent line exists.

5) $y = x^3 - 2x^2 + 2$

6) $y = -x^3 + \dfrac{9x^2}{2} - 12x - 3$

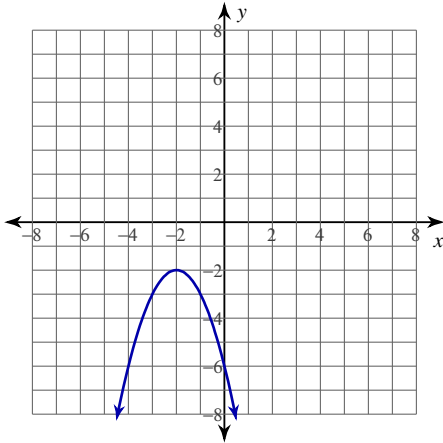7) $y = -\dfrac{2}{x-3}$

8) $y = -\dfrac{1}{x^2 + 1}$

9) $y = (-2x + 4)^{\frac{1}{2}}$

10) $y = -\csc(x); \ [-\pi, \pi]$

Name_____

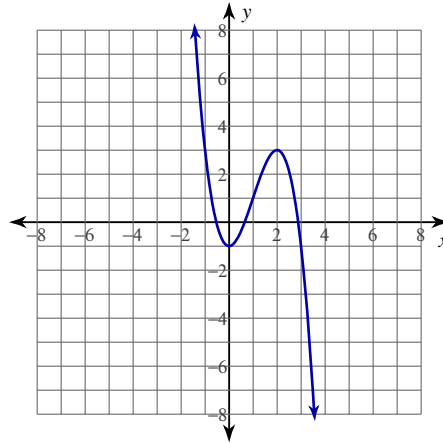# Horizontal Tangents

Date_____ Period_____

For each problem, find the points where the tangent line to the function is horizontal.

1) $y = -x^2 - 4x - 6$

$(-2, -2)$

2) $y = -x^3 + 3x^2 - 1$

$(0, -1), (2, 3)$

3) $y = -x^3 + x^2 - 2$

$(0, -2), \left(\dfrac{2}{3}, -\dfrac{50}{27}\right)$

4) $y = \dfrac{1}{x^2 - 1}$

$(0, -1)$

For each problem, find the points where the tangent line to the function is horizontal. Indicate if no horizontal tangent line exists.

5) $y = x^3 - 2x^2 + 2$

$(0, 2), \left(\dfrac{4}{3}, \dfrac{22}{27}\right)$

6) $y = -x^3 + \dfrac{9x^2}{2} - 12x - 3$

No horizontal tangent line exists.

7) $y = -\dfrac{2}{x - 3}$

No horizontal tangent line exists.

8) $y = -\dfrac{1}{x^2 + 1}$

$(0, -1)$

9) $y = (-2x + 4)^{\frac{1}{2}}$

No horizontal tangent line exists.

10) $y = -\csc(x); \ [-\pi, \pi]$

$\left(-\dfrac{\pi}{2}, 1\right), \left(\dfrac{\pi}{2}, -1\right)$