

Calculate the derivatives of the following functions

(a) $f(x) = x^3 - 2x + 50$

$f'(a) = 3a^2 - 2$ ← power rule

(b) $f(x) = x^{100} - 1$

$f'(a) = 100a^{99}$



(c) $f(x) = x^2 - x + 1$

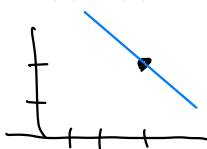
$f'(a) = 2a - 1$

(d) $f(x) = x^{61} - x^{50} + x + 4$

$f'(a) = 61a^{60} - 50a^{49} + 1$

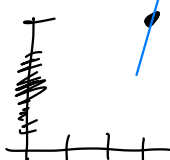
Given the following information, approximate $f(4)$ and $f(2)$

(a) $f(3) = 2, f'(3) = -1$



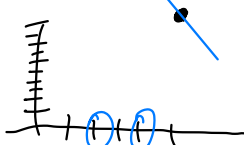
$f(2) = 3, f(4) = 2$

(b) $f(3) = 100, f'(3) = 9$



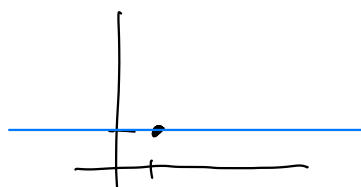
$f(2) = 91, f(4) = 109$

(c) $f(5) = 10, f'(5) = -1$



$f(2) = 13, f(4) = 11$

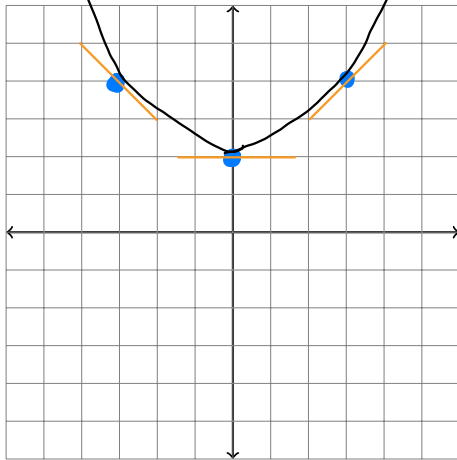
(d) $f(1) = 1, f'(1) = 0$



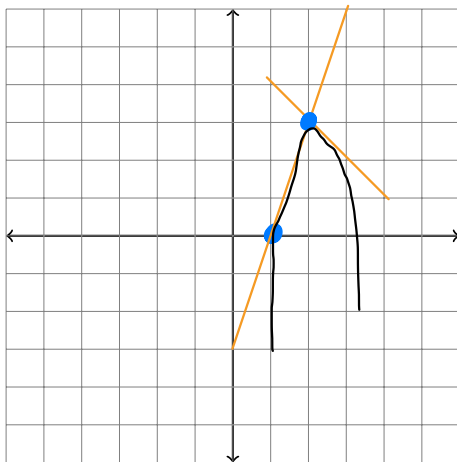
$f(2) = 1$
 $f(4) = 1$

Use the following information to sketch a curve

(a) $f(0) = 2, f'(0) = 0, f(-3) = 4, f'(-3) = -1, f(3) = 4, f'(3) = 1$



(b) $f(1) = 0, f'(1) = 3, f'(2) = -1$



(c) $f(0) = 0, f'(1) = 4, f'(2) = 2, f'(3) = 0, f'(4) = -2, f'(5) = -4$

