

9.8

1/1

Higher order DerivativesEx1: Find the second derivative.

a)  $f(x) = 2x^{10} - 18x^5 - 12x^3 + 4$

b)  $y = 3x^2 - \sqrt[3]{x^2}$

c)  $z = \sqrt{y^3 + y^2 - 2}$

Ex2: Find the indicated derivative.

a)  $f''(x) = x^5 - x^{1/2}$

b)  $\frac{d^2 y}{dx^2}$  if  $y = \sqrt{x+1}$

c)  $f^{(3)}(x)$  if  $\frac{x^2}{x^2+1} = f(x)$

d)  $f^{(4)}(x)$  if  $f(x) = x^6 - 15x^3$

Ex3: use nDeriv to find  $f''(3)$  for  $f(x) = \frac{1}{\sqrt{x^2+7}}$ Ex4: Mathematics notebook on  $f$ ,  $f'$ , and  $f''$ .