Basic facts:
- To have an inverse function, a function must be one-to-one.
- The graphs of a function and its inverse are symmetric across the line $y = x$.
- $\frac{d}{dx} f^{-1}(x) = \frac{1}{f'(f^{-1}(x))}$

For the following problems:
(a) Find the inverse function
(b) Find the tangent line to the function at the given point $x_0$
(c) Find the tangent line to the inverse function at the point $f(x_0)$
(d) Sketch the graph of the function on the given interval, its inverse, and the tangent lines from parts (b) and (c).

1) $f(x) = \sqrt{3x - 2}, \quad \frac{2}{3} \leq x \leq 4, \quad x_0 = 3$

2) $f(x) = e^x, -3 \leq x \leq 5, \quad x_0 = 1$

For the following problems:
(a) Find the tangent line to the function at the given point $x_0$
(b) Find the tangent line to the inverse function at the point $f(x_0)$
(c) Sketch the graph of the function on the given interval, its inverse, and the tangent lines from parts (b) and (c).

3) $f(x) = x^3/(x^2 + 1), \quad -1 \leq x \leq 1, \quad x_0 = \frac{1}{2}$

4) $f(x) = x^3 - 3x^2 - 1, \quad 2 \leq x \leq 5, \quad x_0 = \frac{27}{10}$