(6) $y = 5\sqrt{x}$ $\qquad$ $y' = \dfrac{5}{2\sqrt{x}}$

$\qquad$ so $m_2 = \dfrac{-1}{\frac{5}{4}} = \dfrac{-4}{5}$

$\qquad$ $y - 10 = \dfrac{-4}{5}(x-4)$

$\qquad$ Normal $y - 10 = \dfrac{-4}{5}(x-4)$

$\qquad$ $Q = \left(\dfrac{33}{2}, 0\right)$

(7) $y' = 5 - 24x^{-3} = 5 - \dfrac{24}{x^3}$ ©

(b) $y'(2) = 5 - \dfrac{24}{8} = 5 - 3 = 2$

$\qquad$ $y - 13 = \dfrac{-1}{2}(x-2)$

$\qquad$ $x - 26 = 26$

$\qquad$ $\boxed{x = 28}$

$\underline{(28, 0)}$

① $\dfrac{3x^5-7}{4x}$

$y = \dfrac{3}{4}x^4 - \dfrac{7}{4}x^{-1}$

$\dfrac{dy}{dx} = 3x^3 + \dfrac{7}{4x^2}$

② $y = \dfrac{8}{4x-5}$ $y' = 8 \times \dfrac{-4}{(4x-5)^2} = \dfrac{-32}{(4x-5)^2}$

$y'(2) = \dfrac{-32}{9}$

③ $y = 3x^3 - 3x^2 + x - 7$

$y' = 9x^2 - 6x + 1$

$x = \dfrac{6}{18} = \dfrac{1}{3}$

$y'\left(\dfrac{1}{3}\right) = 9\left(\dfrac{1}{9}\right) - 6\left(\dfrac{1}{3}\right) + 1 = 1 - 2 + 1 = 0$

$y' \geqslant 0$

④ $y = (3-5x)^3 - 2x$

$\dfrac{dy}{dx} = 3(3-5x)^2 \times (-5) - 2 = -15(3-3x)^2 - 2$

$\dfrac{d^2y}{dx^2} = -15 \times 2(3-5x) \times (-5) = 150(3-5x)$

⑤ $y = \dfrac{15}{x^2-2x} = 15(x^2-2x)^{-1}$

$y' = -15(2x-2)(x^2-2x)^{-2} = \dfrac{-30(x-1)}{(x^2-2x)^2}$

$y'(5) = \dfrac{-120}{225} = \dfrac{-8}{15}$