

15, 35, 27

15

$$A(s) = -\frac{12}{s^5} = -12s^{-5}$$

$$A'(s) = 60s^{-6} = \frac{60}{s^6}$$

27

$$\begin{array}{l} x \cdot x^{-1} \\ x \cdot \frac{1}{x} \\ \hline x^2 \cdot x^{-7} = x^{-9} \end{array}$$

$$H(x) = (x + x^{-1})^3 \quad H'(x) = 3(x + x^{-1})^2(1 - x^{-2})$$

$$= (x + x^{-1})(x + x^{-1})(x + x^{-1})$$

$$= (x^2 + 1 + 1 + x^{-2})(x + x^{-1})$$

$$= (x^2 + 2 + x^{-2})(x + x^{-1})$$

$$= x^3 + 2x^1 + x^{-1} + x^1 + 2x^{-1} + x^{-3}$$

$$= x^3 + 3x^1 + 3x^{-1} + x^{-3}$$

$$H'(x) = 3x^2 + 3 - 3x^{-2} - 3x^{-4}$$

35 $y = x^4 + 2e^x$ $(0, 2)$

$$y' = 4x^3 + 2e^x$$

$$y'(0) = 4 \cdot 0^3 + 2e^0$$

$$= 0 + 2 \cdot 1$$

$$y'(0) = 2$$

TAN LINE

$$y - y_1 = m(x - x_1)$$

$$y - 2 = 2(x - 0)$$

NORMAL LINE

$$y - 2 = -\frac{1}{2}(x - 0)$$