(a) $f(x) = \cos(x)$

$$f'(x) = -\sin(x) \quad ; \quad f''(x) = -\cos(x) \tag{1}$$

$$\Rightarrow f(x) \simeq 1 - \frac{x^2}{2} \tag{2}$$

(b) $f(x) = \ln(1+x)$

$$f'(x) = \frac{1}{1+x} \quad ; \quad f''(x) = -\frac{1}{(1+x)^2} \tag{3}$$

$$\Rightarrow f(x) \simeq x - \frac{x^2}{2} \tag{4}$$

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

$$f'(x) = -\frac{3bx}{(a+bx^2)^{5/2}} \quad ; \quad f''(x) = -\frac{3b(a-4bx^2)}{(a+bx^2)^{7/2}} \tag{5}$$

$$\Rightarrow f(x) \simeq \frac{1}{a^{3/2}} - \frac{3bx^2}{2a^{5/2}} \tag{6}$$