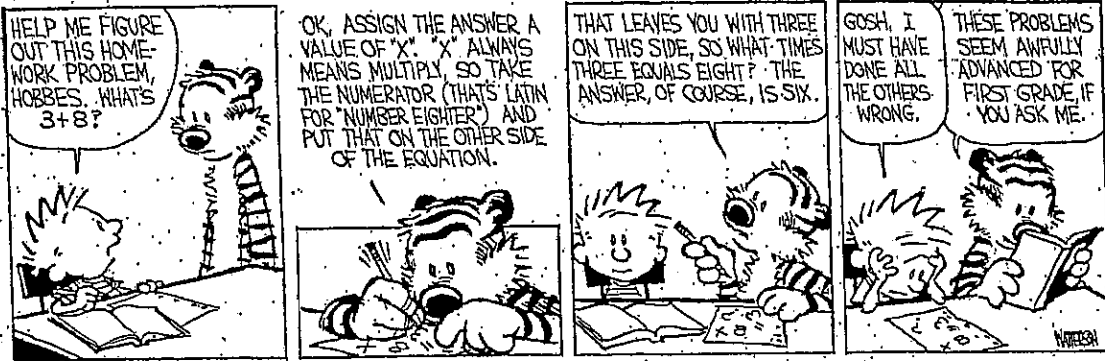Name: __Key__   Section: _____

1. Find the derivative of the function $f(x) = \cos^4(x)$.

$$f'(x) = \underline{-4\cos^3(x)\sin(x)}$$

2. Evaluate $\int x^3(5x^4 + 3)^7 dx$.

$$u = 5x^4 + 3$$
$$du = 20x^3\,dx$$
$$\frac{1}{20}\,du = x^3\,dx$$

$$\int x^3(5x^4+3)^7 dx = \int \frac{1}{20} u^7\,du$$

$$= \frac{1}{20}\frac{u^8}{8} + c$$

$$= \frac{1}{160}(5x^4+3)^8 + c$$

$$\underline{\frac{1}{160}(5x^4+3)^8 + c}$$