Honors Calculus Name_____

Rational Functions and Reverse Chain Rule Integrals

Date_____

Evaluate each indefinite integral.

1) $\int \frac{15x^4}{x^5 - 2}\,dx$

2) $\int -\frac{6x^2}{x^3 - 5}\,dx$

3) $\int -\frac{80x^3}{5x^4 + 2}\,dx$

4) $\int -\frac{24x^3}{2x^4 - 5}\,dx$

5) $\int \frac{6x}{x^2 + 1}\,dx$

6) $\int \frac{24x^2}{2x^3 - 1}\,dx$

7) $\int \frac{40x^3}{2x^4 + 3}\,dx$

8) $\int \frac{50x^4}{5x^5 + 2}\,dx$

9) $\int (x^3 - 3)^4 \cdot 9x^2 \, dx$

10) $\int 48x^3(4x^4 - 3)^3 \, dx$

11) $\int (2x^3 + 1)^4 \cdot 18x^2 \, dx$

12) $\int 60x^4(4x^5 + 3)^5 \, dx$

13) $\int (3x^2 - 2)^4 \cdot 30x \, dx$

14) $\int 45x^2(3x^3 - 5)^5 \, dx$

15) $\int 16x(2x^2 + 1)^4 \, dx$

16) $\int (3x^4 + 4)^3 \cdot 48x^3 \, dx$

Answers to Rational Functions and Reverse Chain Rule Integrals

1) $3\ln\left|x^5-2\right|+C$
2) $-2\ln\left|x^3-5\right|+C$
3) $-4\ln\left(5x^4+2\right)+C$
4) $-3\ln\left|2x^4-5\right|+C$
5) $3\ln\left(x^2+1\right)+C$
6) $4\ln\left|2x^3-1\right|+C$
7) $5\ln\left(2x^4+3\right)+C$
8) $2\ln\left|5x^5+2\right|+C$
9) $\frac{3}{5}\left(x^3-3\right)^5+C$
10) $\frac{3}{4}\left(4x^4-3\right)^4+C$
11) $\frac{3}{5}\left(2x^3+1\right)^5+C$
12) $\frac{1}{2}\left(4x^5+3\right)^6+C$
13) $\left(3x^2-2\right)^5+C$
14) $\frac{5}{6}\left(3x^3-5\right)^6+C$
15) $\frac{4}{5}\left(2x^2+1\right)^5+C$
16) $\left(3x^4+4\right)^4+C$