Calculus - Some Indefinite Integrals review Name_____

Evaluate each indefinite integral.

1) $\int \frac{120x^5 + 42\sqrt[5]{x^2} + 25\sqrt[4]{x}}{10}\,dx$

2) $\int x\left(18x^4 - 15x^3 - 10\right)\,dx$

3) $\int 30x^2 \csc\left(5x^3 + 2\right)\cot\left(5x^3 + 2\right)\,dx$

4) $\int -60x^2 \sec^2\left(5x^3 + 3\right)\,dx$

5) $\int 4x^3 \sin\left(x^4 - 2\right)\,dx$

6) $\int \frac{12x^3}{x^4 + 5}\,dx$

7) $\int \frac{4\left(-4 + \ln 3x\right)^5}{x}\,dx$

8) $\int 10e^{5x}\sqrt[3]{e^{5x} + 5}\,dx$

9) Solve the differential equation below. Show all work.
$f''(x) = 6x^2 + 18x,\ f'(1) = 9,\ f(2)=33$

10) Solve the differential equation below. Show all work.
$f''(x) = 18x + 2,\ f'(-1) = 2,\ f(-1) = 2$

Evaluate each indefinite integral.

11) $\int 75x^4(3x^5 - 2)^{-3}\,dx$

12) $\int x^3(x^4 - 2)^{-5}\,dx$

13) $\int 60x^4(4x^5 - 5)^5\,dx$

14) $\int 7x^2(5x^3 - 2)^{\frac{1}{2}}\,dx$

Calculus - Some Indefinite Integrals review Name_____

Evaluate each indefinite integral.

1) $\int \frac{120x^5 + 42\sqrt[5]{x^2} + 25\sqrt[4]{x}}{10}\,dx$

$2x^6 + 3x^{\frac{7}{5}} + 2x^{\frac{5}{4}} + C$

2) $\int x(18x^4 - 15x^3 - 10)\,dx$

$3x^6 - 3x^5 - 5x^2 + C$

3) $\int 30x^2 \csc(5x^3 + 2)\cot(5x^3 + 2)\,dx$

$-2\csc(5x^3 + 2) + C$

4) $\int -60x^2 \sec^2(5x^3 + 3)\,dx$

$-4\tan(5x^3 + 3) + C$

5) $\int 4x^3 \sin(x^4 - 2)\,dx$

$-\cos(x^4 - 2) + C$

6) $\int \frac{12x^3}{x^4 + 5}\,dx$

$3\ln(x^4 + 5) + C$

7) $\int \frac{4(-4 + \ln 3x)^5}{x}\,dx$

$\frac{2}{3}(-4 + \ln 3x)^6 + C$

8) $\int 10e^{5x}\sqrt[3]{e^{5x} + 5}\,dx$

$\frac{3}{2}(e^{5x} + 5)^{\frac{4}{3}} + C$

9) Solve the differential equation below. Show all work.
$f''(x) = 6x^2 + 18x,\ f'(1) = 9,\ f(2)=33$

$f(x) = \frac{1}{2}x^4 + 3x^3 - 2x + 5$

10) Solve the differential equation below. Show all work.
$f''(x) = 18x + 2,\ f'(-1) = 2,\ f(-1) = 2$

Evaluate each indefinite integral.

11) $\int 75x^4(3x^5 - 2)^{-3}\,dx$

$-\frac{5}{2(3x^5 - 2)^2} + C$

12) $\int x^3(x^4 - 2)^{-5}\,dx$

$-\frac{1}{16}(x^4 - 2)^{-4} + c$

13) $\int 60x^4(4x^5 - 5)^5\,dx$

$\frac{1}{2}(4x^5 - 5)^6 + C$

14) $\int 7x^2(5x^3 - 2)^{\frac{1}{2}}\,dx$

$\frac{14}{15}(5x^3 - 2)^{\frac{3}{2}} + C$