

Evaluate the integral.

1) $\int_0^9 5\sqrt{x} \, dx$

1) _____

2) $\int_1^2 \left(t + \frac{1}{t}\right)^2 \, dx$

2) _____

Find the derivative (use Fundamental Theorem of Calculus).

3) $\frac{d}{dx} \int_0^{x^7} \cos t \, dt$

3) _____

Find the derivative.

4) $\frac{d}{dx} \int_1^{\sqrt{x}} 18t^5 \, dt$

4) _____

5) $y = \int_{x^4}^0 \cos \sqrt{t} \, dt$

5) _____

Find the total area of the region between the curve and the x-axis.

6) $y = x^2 - 6x + 9; 2 \leq x \leq 4$

6) _____

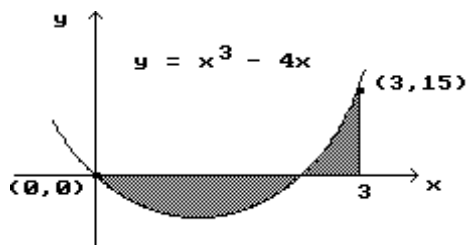
7) $y = x^2(x - 2)^2; 0 \leq x \leq 2$

7) _____

Find the NET area and the TOTAL area of the shaded region.

8)

8) _____



Evaluate the integral using the given substitution.

9) $\int 9(3x - 6)^{-5} \, dx, u = 3x - 6$

9) _____

10) $\int \frac{3}{x^2} \sin^2\left(\frac{3}{x}\right) \, dx, u = -\frac{3}{x}$

10) _____

Evaluate the integral.

$$11) \int 10x^2 \sqrt[4]{8 + 2x^3} \, dx$$

11) _____

Evaluate the integral by using multiple substitutions.

$$12) \int 5(3x^2 - 4) \sin^5(x^3 - 4x) \cos(x^3 - 4x) \, dx$$

12) _____