

### Antiderivatives 1

For problems 1 - 7, find the antiderivative. Check your answer.

1.  $\int \frac{1}{2}x^2 - 2x + 6 \, dx =$

2.  $\int x(2-x)^2 \, dx =$

3.  $\int \sqrt[4]{x^3} + \sqrt[3]{x^4} \, dx$

4.  $\int 3e^x + 7 \sec^2 x \, dx$

5.  $\int 2\sqrt{x} + 6 \cos x \, dx$

$$6. \int 4+3(1+x^2)^{-1} dx$$

$$7. \int 6x+\sin x dx$$

For problems 8 - 10, find  $f(x)$ .

$$8. f'(x) = 8x^3+12x+3, f(1) = 6$$

$$9. f'(x) = (x^2-1)/x, f(1) = \frac{1}{2}$$

$$10. f''(x) = 4-6x-40x^3, f'(0) = 1, f(0) = 2$$