Integrals — Substitution

Name: _____ Date: _____

Find each integral by substitution: let u be the bracket.

1. $\int 9(3x + 2)^2\,dx$

   $u = 3x + 2$, $du = 3\,dx$
   $= \int 3u^2\,du$
   $= u^3 + C$
   $= (3x + 2)^3 + C$

2. $\int 8(2x + 2)^3\,dx$

3. $\int 9(3x + 3)^2\,dx$

4. $\int 3(x + 2)^2\,dx$

5. $\int 12(3x - 3)^3\,dx$

6. $\int -12(-3x - 1)^3\,dx$

Integrals · Substitution — Answer key

1. $\int 9(3x + 2)^2\,dx = (3x + 2)^3 + C$

2. $\int 8(2x + 2)^3\,dx = (2x + 2)^4 + C$

3. $\int 9(3x + 3)^2\,dx = (3x + 3)^3 + C$

4. $\int 3(x + 2)^2\,dx = (x + 2)^3 + C$

5. $\int 12(3x - 3)^3\,dx = (3x - 3)^4 + C$

6. $\int -12(-3x - 1)^3\,dx = (-3x - 1)^4 + C$