# Calculus I $\int (ax+b)^p dx, part 2$

**Todor Miley** 

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Find 
$$\int \sqrt{2x+1} dx$$
.

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$$\int \sqrt{2x+1} dx$$
.  
Let  $u =$ ?

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$$\int \sqrt{2x+1} dx$$
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Let  $u = 2x+1$ .

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Let  $u=2x+1$ .  
Then  $du=$ ?

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Then  $du=2dx$   
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$$\int \sqrt{2x+1} dx.$$
 Let  $u=2x+1$ . Then  $du=2dx$  
$$dx=\frac{1}{2}du.$$

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Then  $du=2dx$   
 $dx=\frac{1}{2}du$ .  
Substitute:  $\int \sqrt{2x+1} dx = \int \frac{1}{2} \sqrt{u} du$ 

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$$\int \sqrt{2x+1} dx$$
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Then  $du=2dx$   
 $dx=\frac{1}{2}du$ .  
Substitute:  $\int \sqrt{2x+1} dx = \int \frac{1}{2} \sqrt{u} du$   
 $=\frac{1}{2} \cdot \frac{u^{\frac{3}{2}}}{\frac{3}{2}}$ 

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 $dx=\frac{1}{2}du$ .  
Substitute:  $\int \sqrt{2x+1} dx = \int \frac{1}{2} \sqrt{u} du$   
 $=\frac{1}{2} \cdot \frac{u^{\frac{3}{2}}}{\frac{3}{2}} + C$ 

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$$\int \sqrt{2x+1} dx.$$
Let  $u = 2x+1$ .
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$$dx = \frac{1}{2}du.$$
Substitute: 
$$\int \sqrt{2x+1} dx = \int \frac{1}{2} \sqrt{u} du$$

$$= \frac{1}{2} \cdot \frac{u^{\frac{3}{2}}}{\frac{3}{2}} + C$$

$$= \frac{1}{3} (2x+1)^{\frac{3}{2}} + C.$$

Find 
$$\int \sqrt{2x+1} dx.$$
Let  $u=2x+1$ .
Then  $du=2dx$ 

$$dx=\frac{1}{2}du.$$
Substitute: 
$$\int \sqrt{2x+1} dx = \int \frac{1}{2} \sqrt{u} du$$

$$=\frac{1}{2} \cdot \frac{u^{\frac{3}{2}}}{\frac{3}{2}} + C$$

$$=\frac{1}{3} (2x+1)^{\frac{3}{2}} + C.$$