

Calculus Practice: Second Fundamental Theorem of Calculus 1a

For each problem, find $F'(x)$.

1) $F(x) = \int_{-5}^{x^2} (-t^2 - 6t - 5) dt$

- A) $F'(x) = 2x^5 + 8x^3 - 4x$
 B) $F'(x) = -2x^5 - 12x^3 - 8x$
 C) $F'(x) = 2x^5 + 4x^3 - 8x$
 D) $F'(x) = -2x^5 - 12x^3 - 10x$

2) $F(x) = \int_{-6}^x (t + 2) dt$

- A) $F'(x) = 2x + 1$
 B) $F'(x) = -x - 2$
 C) $F'(x) = x + 2$
 D) $F'(x) = 2x + 2$

3) $F(x) = \int_{-2}^x (2t + 2) dt$

- A) $F'(x) = x$
 B) $F'(x) = 2x + 2$
 C) $F'(x) = x + 2$
 D) $F'(x) = 2x + 1$

4) $F(x) = \int_1^{x^2} (t^3 - 9t^2 + 24t - 14) dt$

- A) $F'(x) = 2x^7 - 4x^5 - 4x$
 B) $F'(x) = 2x^7 - 14x^5 + 32x^3 - 32x$
 C) $F'(x) = 2x^7 - 18x^5 + 48x^3 - 28x$
 D) $F'(x) = -2x^7 + 4x^5 + 4x$

5) $F(x) = \int_{-2}^x 5t^{\frac{1}{3}} dt$

- A) $F'(x) = x^{\frac{1}{2}}$
 B) $F'(x) = 5x^{\frac{1}{3}}$
 C) $F'(x) = x^{\frac{1}{3}}$
 D) $F'(x) = 2x^{\frac{1}{2}}$

6) $F(x) = \int_{-5}^{x^2} 4t^{\frac{1}{3}} dt$

- A) $F'(x) = -10x^2$
 B) $F'(x) = 2x^2$
 C) $F'(x) = 4x^2$
 D) $F'(x) = 8x^{\frac{5}{3}}$

7) $F(x) = \int_x^{x^2} 2t^{\frac{1}{2}} dt$

- A) $F'(x) = 4x^{\frac{5}{3}} - 2x^{\frac{1}{2}}$
 B) $F'(x) = 4x^2 - 2x^{\frac{1}{2}}$
 C) $F'(x) = -8x^{\frac{5}{3}} - 2x^{\frac{1}{2}}$
 D) $F'(x) = 6x^2 - 2x^{\frac{1}{2}}$

8) $F(x) = \int_x^{2x} 5(t - 2)^{\frac{1}{2}} dt$

- A) $F'(x) = 10(2x - 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$
 B) $F'(x) = 2(2x + 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$
 C) $F'(x) = 8(2x - 1)^{\frac{1}{3}} - 5(x - 2)^{\frac{1}{2}}$
 D) $F'(x) = -6(2x + 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$

$$9) F(x) = \int_{-4}^x \frac{5}{t^2} dt$$

$$A) F'(x) = \frac{5}{x^2}$$

$$B) F'(x) = -\frac{4}{x^2}$$

$$C) F'(x) = -\frac{2}{x^2}$$

$$D) F'(x) = \frac{3}{x^2}$$

$$11) F(x) = \int_2^x \frac{3}{t^2} dt$$

$$A) F'(x) = -\frac{4}{x^2}$$

$$B) F'(x) = \frac{5}{x^2}$$

$$C) F'(x) = \frac{3}{x^3}$$

$$D) F'(x) = \frac{3}{x^2}$$

$$13) F(x) = \int_{-2}^x -e^t dt$$

$$A) F'(x) = 3e^x$$

$$B) F'(x) = 2e^x$$

$$C) F'(x) = e^x$$

$$D) F'(x) = -e^x$$

$$15) F(x) = \int_{-2}^x -2e^t dt$$

$$A) F'(x) = -2e^x$$

$$B) F'(x) = 2e^x$$

$$C) F'(x) = -e^x$$

$$D) F'(x) = e^x$$

$$17) F(x) = \int_{\frac{\pi}{2}}^x 2\csc^2 t dt$$

$$A) F'(x) = 2\sin x$$

$$B) F'(x) = 2\csc x \csc x$$

$$C) F'(x) = -2\sec x \tan x$$

$$D) F'(x) = -\sec x \tan x$$

$$19) F(x) = \int_{-\frac{\pi}{6}}^{x^2} 2\sec t \tan t dt$$

$$A) F'(x) = -2x\sec x^2 \tan x^2$$

$$B) F'(x) = 2x\csc x^2 \cot x^2$$

$$C) F'(x) = -2x\sin x^2$$

$$D) F'(x) = 4x\sec x^2 \tan x^2$$

$$10) F(x) = \int_x^{x^2} -\frac{4}{t^2} dt$$

$$A) F'(x) = \frac{2}{x^3} + \frac{4}{x^2}$$

$$B) F'(x) = \frac{6}{x^3} + \frac{4}{x^2}$$

$$C) F'(x) = -\frac{8}{x^3} + \frac{4}{x^2}$$

$$D) F'(x) = -\frac{8}{x^5} + \frac{4}{x^2}$$

$$12) F(x) = \int_1^{3x} -\frac{1}{t} dt$$

$$A) F'(x) = \frac{2}{x}$$

$$B) F'(x) = -\frac{3}{x}$$

$$C) F'(x) = -\frac{2}{x}$$

$$D) F'(x) = -\frac{1}{x}$$

$$14) F(x) = \int_{-2}^x 3e^t dt$$

$$A) F'(x) = 2e^x$$

$$B) F'(x) = -e^x$$

$$C) F'(x) = e^x$$

$$D) F'(x) = 3e^x$$

$$16) F(x) = \int_{-2}^{3x} -3e^{t-1} dt$$

$$A) F'(x) = -9e^{3x-1}$$

$$B) F'(x) = 3e^{3x+3}$$

$$C) F'(x) = 9e^{3x+3}$$

$$D) F'(x) = -6e^{3x+3}$$

$$18) F(x) = \int_x^{2x} \csc t \cot t dt$$

$$A) F'(x) = 4\cos 2x - \csc x \cot x$$

$$B) F'(x) = 2\csc 2x \cot 2x - \csc x \cot x$$

$$C) F'(x) = 2\sin 2x - \csc x \cot x$$

$$D) F'(x) = 2\csc 2x \csc 2x - \csc x \cot x$$

$$20) F(x) = \int_x^{x^2} \csc t \cot t dt$$

$$A) F'(x) = 2x\cos x^2 - \csc x \cot x$$

$$B) F'(x) = 4x\sec x^2 \tan x^2 - \csc x \cot x$$

$$C) F'(x) = 2x\csc x^2 \cot x^2 - \csc x \cot x$$

$$D) F'(x) = -4x\sec x^2 \sec x^2 - \csc x \cot x$$

Calculus Practice: Second Fundamental Theorem of Calculus 1a

For each problem, find $F'(x)$.

1) $F(x) = \int_{-5}^{x^2} (-t^2 - 6t - 5) dt$

- A) $F'(x) = 2x^5 + 8x^3 - 4x$
 B) $F'(x) = -2x^5 - 12x^3 - 8x$
 C) $F'(x) = 2x^5 + 4x^3 - 8x$
 *D) $F'(x) = -2x^5 - 12x^3 - 10x$

2) $F(x) = \int_{-6}^x (t + 2) dt$

- A) $F'(x) = 2x + 1$
 B) $F'(x) = -x - 2$
 *C) $F'(x) = x + 2$
 D) $F'(x) = 2x + 2$

3) $F(x) = \int_{-2}^x (2t + 2) dt$

- A) $F'(x) = x$
 *B) $F'(x) = 2x + 2$
 C) $F'(x) = x + 2$
 D) $F'(x) = 2x + 1$

4) $F(x) = \int_1^{x^2} (t^3 - 9t^2 + 24t - 14) dt$

- A) $F'(x) = 2x^7 - 4x^5 - 4x$
 B) $F'(x) = 2x^7 - 14x^5 + 32x^3 - 32x$
 *C) $F'(x) = 2x^7 - 18x^5 + 48x^3 - 28x$
 D) $F'(x) = -2x^7 + 4x^5 + 4x$

5) $F(x) = \int_{-2}^x 5t^{\frac{1}{3}} dt$

- A) $F'(x) = x^{\frac{1}{2}}$
 *B) $F'(x) = 5x^{\frac{1}{3}}$
 C) $F'(x) = x^{\frac{1}{3}}$
 D) $F'(x) = 2x^{\frac{1}{2}}$

6) $F(x) = \int_{-5}^{x^2} 4t^{\frac{1}{3}} dt$

- A) $F'(x) = -10x^2$
 B) $F'(x) = 2x^2$
 C) $F'(x) = 4x^2$
 *D) $F'(x) = 8x^{\frac{5}{3}}$

7) $F(x) = \int_x^{x^2} 2t^{\frac{1}{2}} dt$

- A) $F'(x) = 4x^{\frac{5}{3}} - 2x^{\frac{1}{2}}$
 *B) $F'(x) = 4x^2 - 2x^{\frac{1}{2}}$
 C) $F'(x) = -8x^{\frac{5}{3}} - 2x^{\frac{1}{2}}$
 D) $F'(x) = 6x^2 - 2x^{\frac{1}{2}}$

8) $F(x) = \int_x^{2x} 5(t - 2)^{\frac{1}{2}} dt$

- *A) $F'(x) = 10(2x - 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$
 B) $F'(x) = 2(2x + 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$
 C) $F'(x) = 8(2x - 1)^{\frac{1}{3}} - 5(x - 2)^{\frac{1}{2}}$
 D) $F'(x) = -6(2x + 2)^{\frac{1}{2}} - 5(x - 2)^{\frac{1}{2}}$

$$9) F(x) = \int_{-4}^x \frac{5}{t^2} dt$$

*A) $F'(x) = \frac{5}{x^2}$

B) $F'(x) = -\frac{4}{x^2}$

C) $F'(x) = -\frac{2}{x^2}$

D) $F'(x) = \frac{3}{x^2}$

$$11) F(x) = \int_2^x \frac{3}{t^2} dt$$

A) $F'(x) = -\frac{4}{x^2}$

B) $F'(x) = \frac{5}{x^2}$

C) $F'(x) = \frac{3}{x^3}$

*D) $F'(x) = \frac{3}{x^2}$

$$13) F(x) = \int_{-2}^x -e^t dt$$

A) $F'(x) = 3e^x$

B) $F'(x) = 2e^x$

C) $F'(x) = e^x$

*D) $F'(x) = -e^x$

$$15) F(x) = \int_{-2}^x -2e^t dt$$

*A) $F'(x) = -2e^x$

B) $F'(x) = 2e^x$

C) $F'(x) = -e^x$

D) $F'(x) = e^x$

$$17) F(x) = \int_{\frac{\pi}{2}}^x 2\csc^2 t dt$$

A) $F'(x) = 2\sin x$

*B) $F'(x) = 2\csc x \csc x$

C) $F'(x) = -2\sec x \tan x$

D) $F'(x) = -\sec x \tan x$

$$19) F(x) = \int_{-\frac{\pi}{6}}^{x^2} 2\sec t \tan t dt$$

A) $F'(x) = -2x\sec x^2 \tan x^2$

B) $F'(x) = 2x\csc x^2 \cot x^2$

C) $F'(x) = -2x\sin x^2$

*D) $F'(x) = 4x\sec x^2 \tan x^2$

$$10) F(x) = \int_x^{x^2} -\frac{4}{t^2} dt$$

A) $F'(x) = \frac{2}{x^3} + \frac{4}{x^2}$

B) $F'(x) = \frac{6}{x^3} + \frac{4}{x^2}$

*C) $F'(x) = -\frac{8}{x^3} + \frac{4}{x^2}$

D) $F'(x) = -\frac{8}{x^5} + \frac{4}{x^2}$

$$12) F(x) = \int_1^{3x} -\frac{1}{t} dt$$

A) $F'(x) = \frac{2}{x}$

B) $F'(x) = -\frac{3}{x}$

C) $F'(x) = -\frac{2}{x}$

*D) $F'(x) = -\frac{1}{x}$

$$14) F(x) = \int_{-2}^x 3e^t dt$$

A) $F'(x) = 2e^x$

B) $F'(x) = -e^x$

C) $F'(x) = e^x$

*D) $F'(x) = 3e^x$

$$16) F(x) = \int_{-2}^{3x} -3e^{t-1} dt$$

*A) $F'(x) = -9e^{3x-1}$

B) $F'(x) = 3e^{3x+3}$

C) $F'(x) = 9e^{3x+3}$

D) $F'(x) = -6e^{3x+3}$

$$18) F(x) = \int_x^{2x} \csc t \cot t dt$$

A) $F'(x) = 4\cos 2x - \csc x \cot x$

*B) $F'(x) = 2\csc 2x \cot 2x - \csc x \cot x$

C) $F'(x) = 2\sin 2x - \csc x \cot x$

D) $F'(x) = 2\csc 2x \csc 2x - \csc x \cot x$

$$20) F(x) = \int_x^{x^2} \csc t \cot t dt$$

A) $F'(x) = 2x\cos x^2 - \csc x \cot x$

B) $F'(x) = 4x\sec x^2 \tan x^2 - \csc x \cot x$

*C) $F'(x) = 2x\csc x^2 \cot x^2 - \csc x \cot x$

D) $F'(x) = -4x\sec x^2 \sec x^2 - \csc x \cot x$