Name_____

Fundamental Theorem of Calculus

Date_____ Period_____

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

1) $F(x) = \displaystyle\int_{-4}^{x} (t - 1)\, dt$

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

3) $F(x) = \displaystyle\int_{-1}^{x^2} (-2t + 2)\, dt$

4) $F(x) = \displaystyle\int_{4}^{3x} (-t^3 + 11t^2 - 39t + 44)\, dt$

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

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

7) $F(x) = \displaystyle\int_{x}^{x^2} (t^2 - 8t + 11)\, dt$

8) $F(x) = \displaystyle\int_{x}^{2x} \frac{2}{t}\, dt$

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

1) $F(x) = \displaystyle\int_{-4}^{x} (t - 1)\, dt$

$F'(x) = x - 1$

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

$F'(x) = x^2 + 2x + 3$

3) $F(x) = \displaystyle\int_{-1}^{x^2} (-2t + 2)\, dt$

$F'(x) = -4x^3 + 4x$

4) $F(x) = \displaystyle\int_{4}^{3x} (-t^3 + 11t^2 - 39t + 44)\, dt$

$F'(x) = -81x^3 + 297x^2 - 351x + 132$

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

$F'(x) = \dfrac{3}{x^7}$

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

$F'(x) = -4x^3 - 2x + 2$

7) $F(x) = \displaystyle\int_{x}^{x^2} (t^2 - 8t + 11)\, dt$

$F'(x) = 2x^5 - 16x^3 - x^2 + 30x - 11$

8) $F(x) = \displaystyle\int_{x}^{2x} \frac{2}{t}\, dt$

$F'(x) = 0$