8.2 The First Fundamental Theorem of Calculus **NAME:**_____

Corrective Assignment

DATE:_____

Find the antiderivative of the following.

1. $f'(x) = 2x^4 - 5x^2 + 2$

2. $f'(x) = \frac{x^4 - 4x^3}{x}$

3. $f'(x) = 6x - 3\sqrt{x}$

Evaluate the indefinite integrals.

4. $\int (3x + 1)\, dx$

5. $\int \left(5x^{-4} + \frac{8}{x^3}\right) dx$

6. $\int \left(\sqrt{x} + 2\right) dx$

Evaluate the definite integrals using the Fundamental Theorem of Calculus.

7. $\int_0^4 (4x + 5)dx$

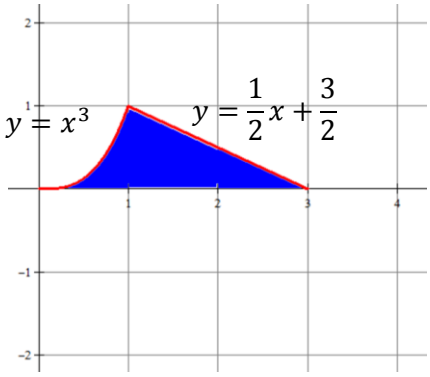
8. $\int_{-1}^3 (3x^2 - 4x + 1)dx$

9. $\int_4^{16} -\sqrt{x}\, dx$

10. $\int_1^3 \left(\frac{x^2 - x}{x}\right) dx$

Set up the definite integral(s) that find the area of the shaded region, but DO NOT SOLVE!

11.



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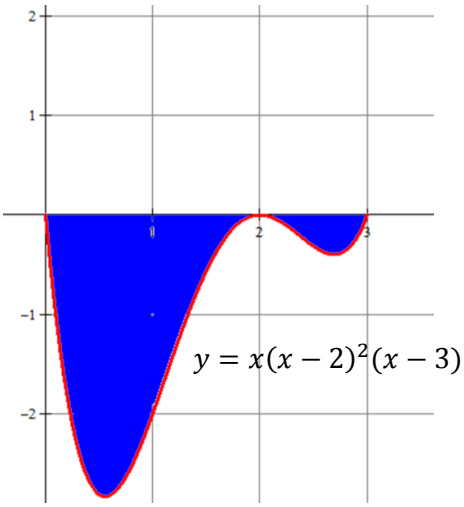
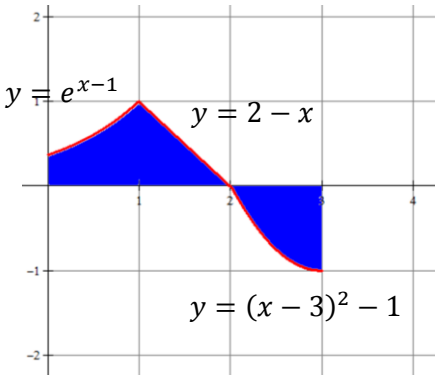


13.



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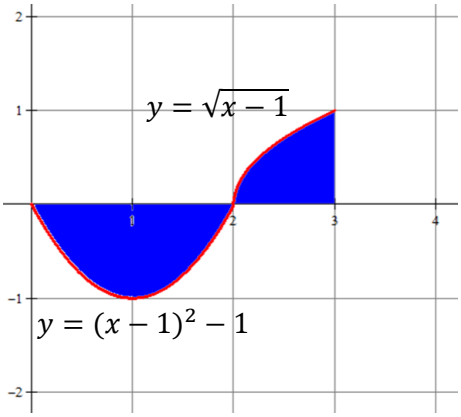

Answers to Corrective Assignment

1. $\frac{2}{5}x^5 - \frac{5}{3}x^3 + 2x + c$	2. $\frac{1}{4}x^4 - \frac{4}{3}x^3 + c$	3. $3x^2 - 2\sqrt{x^3} + c$
4. $\frac{3}{2}x^2 + x + c$	5. $-\frac{5}{3x^3} - \frac{4}{x^2} + c$	6. $\frac{2}{3}\sqrt{x^3} + 2x + c$

7. 52	8. 16	9. $-\frac{112}{3}$	10. 2

11. $\int_0^1 x^3 dx + \int_1^3 \left(\frac{1}{2}x + \frac{3}{2}\right) dx$	12. $\int_0^3 \lvert x(x-2)^2(x-3)\rvert dx$
13. $\int_0^1 e^{x-1} dx + \int_1^2 (2-x) dx + \int_2^3 \lvert(x-3)^2 - 1\rvert dx$	14. $\int_0^2 \lvert(x-1)^2 - 1\rvert dx + \int_2^3 \sqrt{x-1}\, dx$