Test #3 Calc Review G. Buthusiem

Find the most general antiderivative.

1. $\int (2x^3 + 10x + 4)\,dx$

2. $\int \frac{x\sqrt{x} + \sqrt{x}}{x^2}\,dx$

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

4. $\int \sin\theta(\cot\theta + \csc\theta)\,d\theta$

Compute the definite integral as the limit of Riemann sums.

5. $\int_{-1}^{0} (5x - 1)\,dx$

Evaluate the integral.

6. $\int_{-3}^{5} 5x^4\,dx$

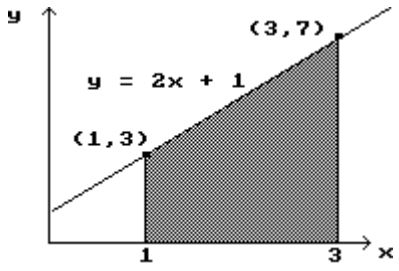
7. $\int_{0}^{3} (x + 2)^3\,dx$

8. $\int_{1}^{4} \frac{t^2 + 1}{\sqrt{t}}\,dt$

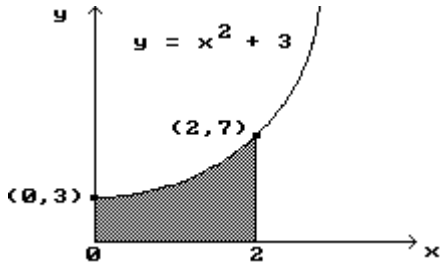
9. $\int_{-\pi/4}^{3\pi/4} 4\sec\theta\tan\theta\,d\theta$

Find the area of the shaded region.

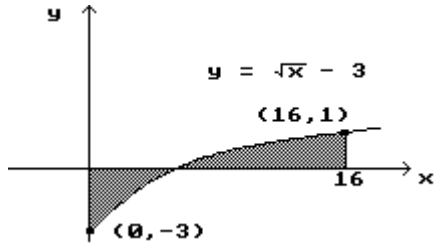
10.



11.



12.



Evaluate the integral.

13. $\int \frac{x\,dx}{(7x^2 + 3)^5}$

14. $\int x^6(x^7 - 9)^4\,dx$

15. $\int 10x^2 \sqrt[4]{2 + 3x^3}\,dx$

16. $\int \frac{\sin t}{(3 + \cos t)^5}\,dt$

Find the derivative of y with respect to x, t, or θ, as appropriate.

17. $y = \ln \frac{1 - x}{(x + 3)^3}$

Evaluate the integral.

18. $\int \frac{5\,dx}{9 - 7x}$

19. $\int_2^3 \frac{x^4 + 1}{x^5 + 5x}\,dx$

20. $\int \frac{\cos x\,dx}{1 + 3\sin x}$

Find the derivative of y with respect to x, t, or θ, as appropriate.

21. $y = e^{2 - 5x}$

Evaluate the integral.

22. $\int x^6 e^{-x^7}\, dx$

23. $\int \frac{e^{4\theta}}{1 + e^{4\theta}}\, d\theta$

Answer Key
Testname: CALC 1 TEST 3 EXTRA REVIEW

1. $\frac{1}{2}x^4 + 5x^2 + 4x + C$

2. $2\sqrt{x} - \frac{2}{\sqrt{x}} + C$

3. $-4 \tan x + C$

4. $\sin \theta + \theta + C$

5. $-\frac{7}{2}$

6. 3368

7. $\frac{609}{4}$

8. $\frac{72}{5}$

9. $-8\sqrt{2}$

10. 10

11. $\frac{26}{3}$

12. $\frac{38}{3}$

13. $-\frac{1}{56}(7x^2 + 3)^{-4} + C$

14. $\frac{\left(x^7 - 9\right)^5}{35} + C$

15. $\frac{8}{9}\left(2 + 3x^3\right)^{5/4} + C$

16. $\frac{1}{4(3 + \cos t)^4} + C$

17. $\frac{2x - 6}{(x + 3)(1 - x)}$

18. $-\frac{5}{7} \ln\left|-9 + 7x\right| + C$

19. $\frac{1}{5} \ln\left|\frac{43}{7}\right|$

20. $\frac{1}{3} \ln\left|1 + 3 \sin x\right| + C$

21. $-5e^2 - 5x$

22. $-\frac{1}{7}e^{-x^7} + C$

23. $\frac{\ln (1 + e^{4\theta})}{4} + C$