REVIEW: FUNDAMENTAL THEOREM OF CALCULUS

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Name: _____

Use the Fundamental Theorem of Calculus to evaluate the following definite integrals.

1. $\displaystyle\int_1^3 \left(x^2 + 2x - 4\right) \mathrm{d}x$

2. $\displaystyle\int_0^1 \left(1 - 8v^3 + 16v^7\right) \mathrm{d}v$

3. $\displaystyle\int_1^8 x^{-2/3} \, \mathrm{d}x$

4. $\displaystyle\int_{\pi/6}^{\pi/2} \csc(t)\cot(t) \, \mathrm{d}t$

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5. $\displaystyle\int_{\pi/4}^{\pi/3} \csc^2(\theta)\,\mathrm{d}\theta$

6. $\displaystyle\int_{0}^{\pi/4} \sec(\theta)\tan(\theta)\,\mathrm{d}\theta$

7. $\displaystyle\int_{0}^{1} \cos(\pi t/2)\,\mathrm{d}t$

8. $\displaystyle\int_{0}^{1} (2t-1)^{50}\,\mathrm{d}t$

9. $\displaystyle\int_{0}^{\pi/6} \frac{\sin(t)}{\cos^2(t)}\,\mathrm{d}t$

10. $\displaystyle\int_{0}^{3} x\sqrt{9-x^2}\,\mathrm{d}x$

11. $\displaystyle\int_0^{\pi/2} \cos(x)\sin(\sin(x))\,\mathrm{d}x$

12. $\displaystyle\int_{-\pi/3}^{\pi/3} x^4\sin(x)\,\mathrm{d}x$