CALCULUS I – Worksheet #30

1. $\int e^x \sin x\,dx$

2. $\int x(\tan^{-1}x)\,dx$

3. $\int_1^e \ln x\,dx$

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

5. $\int_1^2 2^x\,dx$

6. $\int_0^1 x\left(5^{-x^2}\right)dx$

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7. $\sum_{j=-3}^{3} (2j+1) =$

For 8 – 10: $\int_{-1}^{0} f(x)\,dx = -2$ | $\int_{0}^{1} f(x)\,dx = 1$ | $\int_{-1}^{0} g(x)\,dx = 3$ | $\int_{-1}^{1} g(x)\,dx = 7$ | $\int_{-1}^{1} h(x)\,dx = 5$ | $\int_{0}^{1} h(x)\,dx = 11$

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8. $\int_{-1}^{1} f(x)\,dx$

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

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10. $\int_{-1}^{-1} g(x)\,dx$

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11. If $f(x) = x^2 \tan^{-1} x$, then $f'(1) =$ A) 0 B) $\frac{2+p}{4}$ C) $\frac{1+p}{2}$ D) $\frac{2+p}{2}$ E) 1

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12. $\int \frac{4}{x^2+1}\,dx =$ A) $2\ln(x^2+1) + C$ B) $\frac{-8}{(x^2+1)^2} + C$ C) $4\sin^{-1} x + C$ D) $4 \operatorname{Arctan} x + C$ E) $\frac{4}{x\ln(x^2+1)} + C$

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13. $\int \frac{2}{x^2+9}\,dx =$ A) $\ln|x^2+9| + C$ B) $2\tan^{-1} 3x + C$ C) $\frac{2}{3}\sin^{-1}\frac{x}{3} + C$ D) $\frac{2}{3}\tan^{-1}\frac{x}{9} + C$ E) $\frac{2}{3}\tan^{-1}\frac{x}{3} + C$

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14. The area between the curve $y^2 = 4x$ and the line $y = x$ is A) $\frac{4}{3}$ B) 4 C) $\frac{5}{4}$ D) $\frac{2}{3}$ E) $\frac{8}{3}$