GROUP QUIZ 7 QUESTIONS

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You may or may not need to use the following reduction formulae.

$$\int \sin^n u\, du = -\frac{1}{n}\sin^{n-1} u \cos u + \frac{n-1}{n}\int \sin^{n-2} u\, du \qquad \text{if } n \neq 0$$

$$\int \cos^n u\, du = \frac{1}{n}\cos^{n-1} u \sin u + \frac{n-1}{n}\int \cos^{n-2} u\, du \qquad \text{if } n \neq 0$$

$$\int \sec^n u\, du = \frac{1}{n-1}\sec^{n-2} u \tan u + \frac{n-2}{n-1}\int \sec^{n-2} u\, du \qquad \text{if } n \neq 1$$

Evaluate the following integrals.

[a] $\int \tan^7 x \sec^3 x\, dx$

[b] $\int \tan^7 x \sec^4 x\, dx$

[c] $\int x^2 \sqrt{4x^2+9}\, dx$

[d] $\int \frac{x}{\sqrt{4x^2-9}}\, dx$

[e] $\int x^2 \sqrt{4-9x^2}\, dx$

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