20. In order to evaluate $\int t \sin(t^2)\,dt$ using substitution, you would probably use $u =$

A. t^2

B. $\cos(t^2)2t\,dt$

C. $2t\,dt$

D. $\sin(t^2)$

E. t

22. In order to evaluate $\int \frac{x}{\sqrt{1-x^2}}\,dx$ using substitution, you would set $u =$

A. x

B. $1 - x^2$

C. $1 - x$

D. $\frac{1}{\sqrt{1-x^2}}$

E. Substitution won't work.

23. If $g(x) = x\sqrt{9-x^2}$, the antiderivative $G(x) =$

A. $\frac{3}{2}x^2 - \frac{1}{3}x^3 + C$

B. $\frac{3}{2}x^2 - x^3 + C$

C. $-\frac{1}{2}((9-x^2)^{\frac{3}{2}}) + C$

D. $\frac{(9-x^2)^{\frac{3}{2}}}{3} + C$

E. $-\frac{1}{3}\left(\sqrt{9-x^2}\right)^3 + C$

24. Given that $g'(t) = (\sin t)(5 + 5\cos t)^3$, find $g(t)$ if $g(0) = 0$.

A. $g(t) = -\frac{1}{4}(5 + 5\cos t)^4$

B. $g(t) = -\frac{1}{4}(5 + 5\cos t)^4 + 2,500$

C. $g(t) = \frac{1}{4}(5 + 5\cos t)^4 - 2,500$

D. $g(t) = -\frac{1}{20}(5 + 5\cos t)^4 + 500$

E. $g(t) = \frac{1}{20}(5 + 5\cos t)^4 - 500$

25. $\int 3x(x^2+7)^3\,dx =$

A. $\frac{3}{8}(x^2+7)^4 + C$

B. $\frac{3}{4}(x^2+7)^4 + C$

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

D. $3(x^2+7)^4 + C$

E. None of these.

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26. $\int \frac{x^2}{(2x^3-12)^4}\,dx =$

A. $-(2x^3-12)^{-3} + C$

B. $\frac{-1}{18(2x^3-12)^3} + C$

C. $\frac{-1}{3(2x^3-12)^3} + C$

D. $-\frac{1}{4}(2x^3-12)^{-3} + C$

E. None of these.

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30. $\int \sec^2 x \tan x\,dx =$

A. $\frac{1}{3}\sec^3 x + C$

B. $\tan^2 x + C$

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

D. $2\sec^2 x + C$

E. None of these.

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34. $\int \sin(4x)\sec^6(4x)\,dx =$

A. $\frac{1}{7}\sec^7(4x) + C$

B. $\frac{1}{20}\sec^5(4x) + C$

C. $\frac{1}{28}\sec^7(4x) + C$

D. $\frac{1}{28}\sec^5(4x)\tan(4x) + C$

E. None of these.