MA 126-103 — Summer 2017 — Dr. Clontz — Readiness Quizzes

1. The Substitution Rule is the opposite of which derivative rule? (2017-06-05, 2.1)
   A. Chain Rule
   B. Product Rule
   C. Quotient Rule
   D. Power Rule

2. What is incorrect about the following attempt at using the Substitution Rule?

$$\int_0^1 (3-2x)^5\,dx = \int_0^1 u^5\left(-\frac{1}{2}du\right)$$

   (2017-06-05, 2.1)
   A. dx should have been replaced with $+\frac{1}{2}\,du$.
   B. The bounds are incorrect.
   C. u shouldn't be raised to the 5th power.
   D. dx should have been replaced with $-2\,du$.

3. Which of these formulas would be most useful in finding $\int \sin^4\theta\cos^2\theta\,d\theta$? (2017-06-05, 2.2)
   A. $\sin^2(\theta)=\frac{1}{2}+\frac{1}{2}\sin(2\theta)$
   B. $\cos^2(\theta)=1-\sin^2(\theta)$
   C. $\sin^2(\theta)=1-\cos^2(\theta)$
   D. $\cos^2(\theta)=\frac{1}{2}+\frac{1}{2}\cos(2\theta)$

4. Which of these formulas would be most useful in finding $\int \sec^4(\theta)\,d\theta$? (2017-06-05, 2.2)
   A. $\sec^2(\theta)=1-\tan^2(\theta)$
   B. $\tan^2(\theta)=1+\sec^2(\theta)$
   C. $\sec^2(\theta)=1+\tan^2(\theta)$
   D. $\tan^2(\theta)=1-\sec^2(\theta)$

5. Which of these substitutions would be most useful in finding $\int \frac{1}{25x^2+9}\,dx$? (2017-06-05, 2.3)

   A. Let $25x^2 + 9 = 25\sec^2\theta + 25$.

   B. Let $25x^2 + 9 = 9\tan^2\theta + 9$.

   C. Let $25x^2 + 9 = 9\sin^2\theta + 9$.

   D. Let $25x^2 + 9 = 25\cos^2\theta + 25$.

6. Which of these substitutions would be most useful in finding $\int \frac{1}{x\sqrt{4-16x^2}}\,dx$? (2017-06-05, 2.3)

   A. Let $4 - 16x^2 = 16 - 16\cos^2\theta$.

   B. Let $4 - 16x^2 = 4 - 4\sin^2\theta$.

   C. Let $4 - 16x^2 = 4 + 4\tan^2\theta$.

   D. Let $4 - 16x^2 = 16 + 16\sec^2\theta$.

7. Which of these substitutions would be most useful in finding $\int_3^5 \frac{1}{\sqrt{x^2-9}}\,dx$? (2017-06-05, 2.3)

   A. Let $x^2 - 9 = 9\sin^2\theta + 9$.

   B. Let $x^2 - 9 = \tan^2\theta - 1$.

   C. Let $x^2 - 9 = 9\sec^2\theta - 9$.

   D. Let $x^2 - 9 = \cos^2\theta + 1$.