

EMCF13 – Math 1432, 13209

The answer sheet for this assignment can be found by logging into *CourseWare* at <http://www.casa.uh.edu>, selecting **Math 1432(13209)**, clicking on the **EMCF** tab at the top of the page, and selecting **EMCF13**.

1. Give the appropriate trigonometric substitution for $\int \sqrt{1-x^2} dx$.
 - a. $x = \tan(\theta)$
 - b. $x = \sin(\theta)$
 - c. $x = \sec(\theta)$
 - d. $x = e^\theta$
 - e. None of these.
2. Give the appropriate trigonometric substitution for $\int \sqrt{1+x^2} dx$.
 - a. $x = \tan(\theta)$
 - b. $x = \sin(\theta)$
 - c. $x = \sec(\theta)$
 - d. $x = e^\theta$
 - e. None of these.
3. Give the appropriate trigonometric substitution for $\int \sqrt{x^2-1} dx$.
 - a. $x = \tan(\theta)$
 - b. $x = \sin(\theta)$
 - c. $x = \sec(\theta)$
 - d. $x = e^\theta$
 - e. None of these.

4. Give the appropriate trigonometric substitution for $\int \sqrt{4-x^2} dx$.
- $x = 2 \tan(\theta)$
 - $x = 2 \sin(\theta)$
 - $x = 2 \sec(\theta)$
 - $x = 2e^\theta$
 - None of these.
5. Give the appropriate trigonometric substitution for $\int \sqrt{9+x^2} dx$.
- $x = 3 \tan(\theta)$
 - $x = 9 \tan(\theta)$
 - $x = 3 \sec(\theta)$
 - $x = 9 \sec(\theta)$
 - None of these.
6. Give the appropriate trigonometric substitution for $\int \sqrt{x^2-25} dx$.
- $x = 5 \tan(\theta)$
 - $x = 25 \tan(\theta)$
 - $x = 5 \sec(\theta)$
 - $x = 25 \sec(\theta)$
 - None of these.
7. Give the appropriate trigonometric substitution for $\int \sqrt{4+2x-x^2} dx$.
- $x-1 = 3 \tan(\theta)$
 - $x-1 = \sqrt{3} \tan(\theta)$
 - $x-1 = 3 \sin(\theta)$
 - $x-1 = \sqrt{3} \sin(\theta)$
 - None of these.

8. Give the appropriate trigonometric substitution for $\int \sqrt{x^2 + 3x + 9} dx$.

a. $x + 3/2 = \frac{3\sqrt{3}}{2} \tan(\theta)$

b. $x + 3/2 = \frac{27}{4} \tan(\theta)$

c. $x + 3/2 = \frac{3\sqrt{3}}{2} \sec(\theta)$

d. $x + 3/2 = \frac{27}{4} \sec(\theta)$

e. None of these.

9. Give the appropriate trigonometric substitution for $\int \sqrt{x^2 + 2x - 11} dx$.

a. $x + 1 = 2\sqrt{3} \tan(\theta)$

b. $x + 1 = 12 \tan(\theta)$

c. $x + 1 = 2\sqrt{3} \sec(\theta)$

d. $x + 1 = 12 \sec(\theta)$

e. None of these.

10. $\int \sqrt{4 - x^2} dx =$

a. $x\sqrt{4 - x^2} - 2 \arcsin\left(\frac{x}{2}\right)$

b. $\frac{1}{2}x\sqrt{4 - x^2} + 2 \arcsin\left(\frac{x}{2}\right)$

c. $x\sqrt{4 - x^2} + 2 \arcsin\left(\frac{x}{2}\right)$

d. $\frac{1}{2}x\sqrt{4 - x^2} - 2 \arcsin\left(\frac{x}{2}\right)$

e. None of these.