Calculus II	Name:
Study Guide 17	Class:
Due Date:	Score:

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. (5 points) Use the trigonometric substitution and draw/label the reference right triangle to evaluate: $\displaystyle\int_0^3 \frac{x}{\sqrt{36 - x^2}}\, dx$

1. _____

2. (5 points) Use the trigonometric substitution and draw/label the reference right triangle to evaluate: $\displaystyle\int_0^1 \frac{1}{\sqrt{1 + x^2}}\, dx$

2. _____

3. (7 points) Use the trigonometric substitution and draw/label the reference right triangle to
evaluate: $\displaystyle\int_{\sqrt{2}/3}^{2/3} \frac{1}{x^5\sqrt{9x^2-1}}\, dx$

3. _____

4. (6 points) Use the trigonometric substitution and draw/label the reference right triangle to
evaluate: $\displaystyle\int_{0}^{\pi/2} \frac{\sin x}{\sqrt{1+\cos^2 x}}\, dx$

4. _____

5. (6 points) Find the average value of $f(x) = \sqrt{x^2 - 1}$ over the interval $[1, 7]$.

5. _____

6. (7 points) Find the area of the region bounded by the hyperbola $9x^2 - 4y^2 = 36$ and the line $x = 3$. Drawing required.

6. _____

7. (7 points) Find the volume of the solid obtained by rotating about the line $x = 1$ the region under the curve $f(x) = x\sqrt{1 - x^2}$ for $0 \leq x \leq 1$. Drawing required.

7. _____

8. (7 points) Use the trigonometric substitution and draw/label the reference right triangle to evaluate: $\displaystyle\int \frac{1}{\sqrt{x^2 - 6x + 13}}\, dx$

8. _____