

# Reflection form for resubmissions

## Instructions:

- The maximum number of standards that you can reassess at a given time is 2. Therefore each reflection form must be a reflection of **at most 2** standards.
- Please respond to each of the following prompts.
- When you're done, save this file as a pdf and submit it on Canvas.

**State your name:** Logan Clampitt

### 1. Which standard (or standards) would you like to reassess?

I3 and I4

### 2. Have you completed the MyOpenMath for this standard? If the answer is no, then go back and complete the relevant MYOM. If you are unsure please reach out to me to confirm.

yes

### 3. Write a reflection on your previous work here. See examples of [really good reflections](#).

Working on I3 and I4 was challenging but also really satisfying. In I3, expanding and using trigonometric identities felt like solving a cool puzzle, and substitution in the second problem made everything click into place. In I4, the problems were tougher, especially with the trigonometric substitution, but it was rewarding to see how all the steps came together. These problems reminded me that patience and taking things one step at a time can make even hard math problems manageable.

### 4. Paste images of your revised and corrected work below.

I4

$$1. \int \frac{x^3}{\sqrt{x^2+4}} \quad u = x^2+4 \quad du = 2x dx \quad = \frac{1}{2} \int \frac{(u-4)}{\sqrt{u}} du$$

$$= \frac{1}{2} \int (u^{1/2} - 4u^{-1/2}) du$$

$$= \frac{1}{2} \left( \frac{2}{3} u^{3/2} - 8u^{1/2} \right) = \boxed{\frac{1}{3} (x^2+4)^{3/2} - 4(x^2+4)^{1/2} + C}$$

$$2. \int \frac{x^2}{\sqrt{16-x^2}} \quad \sqrt{16-x^2} = 4 \cos(\theta)$$

$$x = \frac{4}{3} \sin(\theta) \\ dx = \frac{4}{3} \cos(\theta) d\theta$$

$$= \int \frac{(\frac{4}{3} \sin \theta)^2}{4 \cos \theta} \cdot \frac{4}{3} \cos \theta d\theta$$

$$= \int \frac{16/9 \sin^2 \theta}{4 \cos \theta} \cdot \frac{4}{3} \cos \theta d\theta \Rightarrow \int \frac{64}{27} \sin^2 \theta d\theta$$

$$\Rightarrow \frac{64}{27} \int \frac{1 - \cos(2\theta)}{2} d\theta$$

$$\int \frac{1}{2} d\theta = \frac{\theta}{2} \\ \int \frac{-\cos(2\theta)}{2} d\theta = -\frac{1}{4} \sin(2\theta)$$

$$\Rightarrow \frac{64}{27} \left( \frac{\theta}{2} - \frac{1}{4} \sin(2\theta) \right)$$

$$\Rightarrow \boxed{\frac{32}{27} \arcsin\left(\frac{3x}{4}\right) - \frac{16}{27} \sin\left(2 \arcsin\left(\frac{3x}{4}\right)\right) + C}$$

I3

$$1 \int_0^{\pi/2} (2 - \sin(\theta))^2 d\theta$$

$$= (2 - \sin(\theta))^2 = 4 - 4\sin(\theta) + \sin^2(\theta)$$

$$= 4 \int_0^{\pi/2} d\theta - 4 \int_0^{\pi/2} \sin(\theta) d\theta + \int_0^{\pi/2} \sin^2(\theta) d\theta$$

$$\bullet 4 \int_0^{\pi/2} d\theta = 4[\theta]_0^{\pi/2} = 4 \cdot \pi/2 = 2\pi$$

$$\bullet 4 \int_0^{\pi/2} \sin(\theta) d\theta = 4[-\cos(\theta)]_0^{\pi/2} = 4(1-0) = 4$$

$$\bullet \int_0^{\pi/2} \sin^2(\theta) d\theta = \frac{1}{2} \int_0^{\pi/2} (1 - \cos(2\theta)) d\theta = \frac{1}{2} \left[ \theta - \frac{\sin(2\theta)}{2} \right]_0^{\pi/2}$$

$$\theta = \pi/2 \quad \frac{1}{2}(\pi/2 - 0) = \pi/4$$

$$= 2\pi + \pi/4 - 4 = 8\pi/4 + \pi/4 - 4 = \boxed{9\pi/4 - 4}$$

$$2 \int \tan^3 x \sec x dx$$

$$= \tan^3(x) \sec(x) = \tan^2(x) \cdot \tan(x) \sec(x)$$

$$\tan^2(x) = \sec^2(x) - 1$$

$$= \int (\sec^2(x) - 1) \tan(x) \sec(x) dx$$

$$= \int \sec^3(x) \tan(x) dx - \int \sec(x) \tan(x) dx$$

$$\bullet \int \sec(x) \tan(x) = \sec(x) + C$$

$$\bullet \int u^3 du = \frac{u^4}{4} = \frac{\sec^4(x)}{4}$$

$$\boxed{= \frac{\sec^4(x)}{4} - \sec(x) + C}$$

**5. Select two-three 30-minute blocks within the following windows to reassess. Note, only two students may reassess during a given block given the amount of space I have available in my office. I will confirm your selected time on Canvas.**

**Monday 12/2/2024:**

11-11:30am	11:30-12pm	1:30-2pm	2-2:30pm	4-4:30pm	4:30-5pm
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**Wednesday 12/4/2024:**

11-11:30am	11:30-12pm	12-12:30pm	12:30-1pm	1-1:30pm	1:30-2pm	4-4:30pm	4:30-5pm
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**Thursday 12/5/2024:**

9-9:30am	9:30-10am	10-10:30am	10:30-11am	11-11:30am	11:30-12pm	12-12:30pm
12:30-1pm	1-1:30pm	4-4:30pm	4:30-5pm			

**Friday 12/6/2024:**

10:15-10:45am	10:45-11:15am	11:20-11:50am	1:10-1:40pm	1:50-2:20pm	3:40-4:10pm	4:10-4:40pm
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**Monday 12/9/2024:**

11-11:30am	11:30-12pm	1:30-2pm	2-2:30pm	4-4:30pm	4:30-5pm
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