

Read each question carefully and be sure to SHOW ALL WORK. Correct answer without proper justification will not receive a “Complete” grade. Pac fat! Good luck!

Name: _____

LO 13. Trigonometric Substitution. I can apply trigonometric substitution as needed. All the formulas we learned in the table of integrals involving inverse trigonometric functions can be derived using trigonometric substitution.

Criteria for Success: I can

- identify the correct trigonometric substitution
- perform trigonometric substitution as needed

Question: The following integral can be easily solved with a regular u -substitution, but I would like you to solve it through trigonometric substitution. Clearly state the relationships between x , dx , θ , and $d\theta$.

$$\int x^5 (\sqrt{x^6 - 72})^3 dx =$$