

Spring 2021: Intro, Approx & Errors: Chapter 01.01 thru Chapter 01.03

Concept Questions

...

1

To find velocity from acceleration vs time data, the mathematical procedure used is

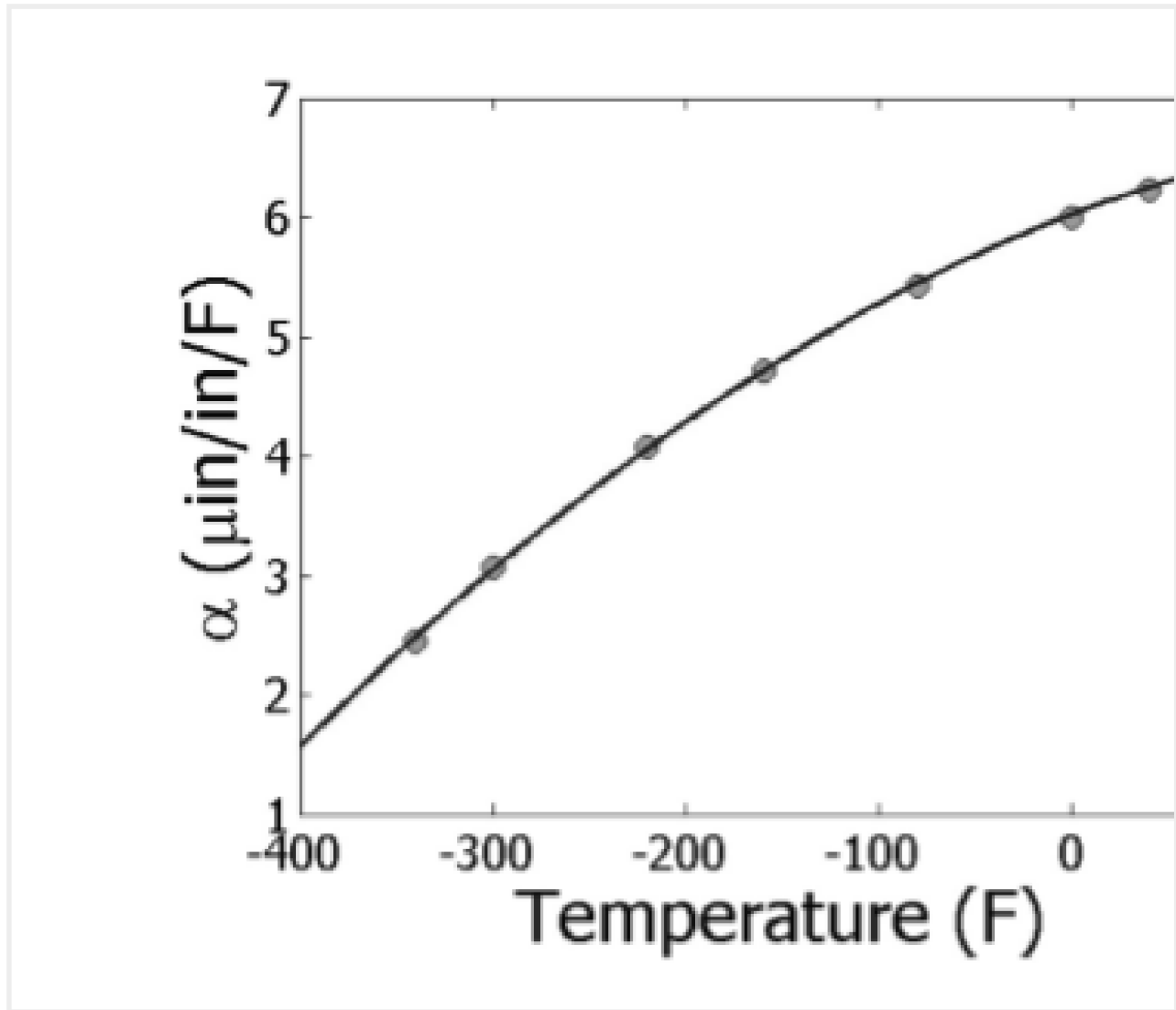
- ☐ Differentiation
- ☐ Integration

2

A steel cylindrical shaft at room temperature is immersed in a dry-ice/alcohol bath. A layman estimates the reduction in diameter by using

$$\Delta D = D \alpha \Delta T$$

while using the value of the thermal expansion coefficient at -108 F. Seeing the graph below, the magnitude of contraction you as a USF educated engineer would calculate would be _____ than the layman's estimate.



- ☐ Less
- ☐ More
- ☐ Same

3

Three significant digits are expected to be correct after an iterative process. The pre-specified tolerance, in this case, needs to be less than or equal to

- ☐ 0.5%
- ☐ 0.05%
- ☐ 0.005%

☐ 0.0005%

4

The number 6.749832 with 3 significant digits with chopping is

☐ 6.74

☐ 6.75

☐ 6.749

☐ 6.750

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