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
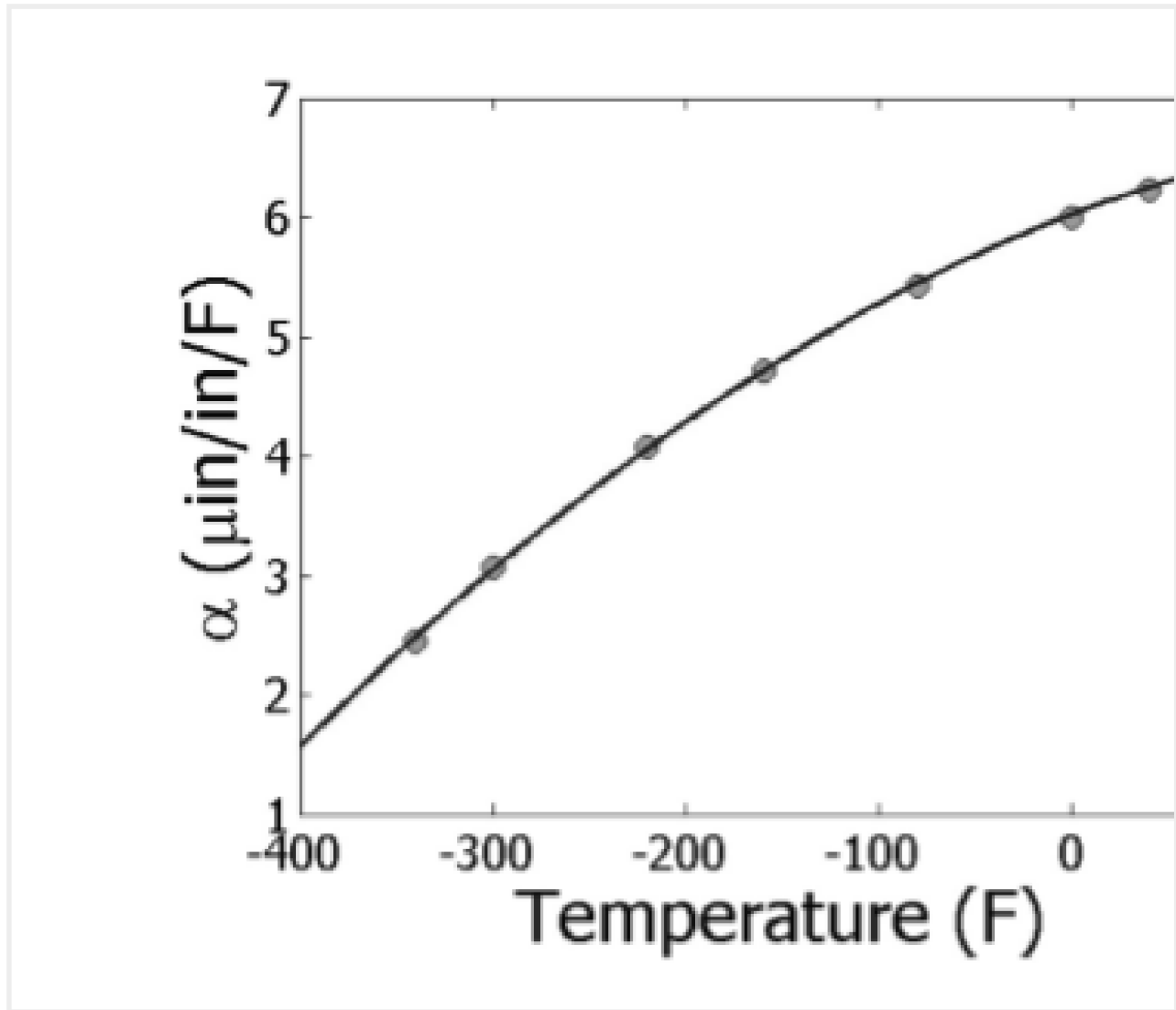
○ Differentiation

○ 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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