

Fa 96
EGN 3420

Exam 2

Name _____

SHOW ALL WORK!

Problem 1 (25 pts)

Fit a saturation growth model to the data in the table.

x	1	2	2.5	4	6	8	8.5
y	0.4	0.7	0.8	1.0	1.2	1.3	1.4

Work Area

Ans. $y =$

Fa 96
EGN 3420

Exam 2

Name _____

SHOW ALL WORK!

Problem 2 (25 pts)

Fit a 3rd order Newton Divided Difference Interpolating polynomial thru the data given below and estimate the error at $x=3.5$ by using an additional data point at $(6,36)$.

x	1	2	3	5
f(x)	4.75	4	5.25	19.75

Work Area

$f_3(x) =$ _____

Estimate of error in $f_3(3.5) =$ _____

Fa 96
EGN 3420

Exam 2

Name _____

SHOW ALL WORK!

Problem 3 (25 pts)

Evaluate the integral $\int_0^{\pi} (4 + 2 \sin x) dx$

- a) Analytically
- b) By trapezoidal integration using 8 intervals
- c) By Simpson's 1/3 formula using 4 intervals

Work Area

Ans. a) _____ b) _____ c) _____

Fa 96
EGN 3420

Exam 2

Name _____

SHOW ALL WORK!

Problem 4 (25 pts)

Use Richardson's Extrapolation with 4 and 8 intervals to obtain an estimate of

$$I = \int_0^4 xe^{2x} dx$$

with truncation error $O(h^4)$.

Work Area

Ans.