EXAM 4 REVIEW

Page	Problem
243	41, 44
253	41, 43, 53, 54, 91, 95, 99
262	23, 45, 57, 58, 60
271	17, 19, 20, 21, 38
287	23, 61, 65

Answers for even numbered and additional problems:

44. absolute min. at $x = e^{-1/2}$.

#54. local max: x = 1 and y = e^(-1)
inflection: x = 2, y = 2e^(-2)

#58. e^2

#60. 1

#20. Dimensions = 18 x 18 x 36, maximum.

#38. critical point, x = 4/sqrt(21) ~ 0.87, y = 2.12, i.e., Jane should land her boat 0.87 miles down the shoreline from the point nearest her boat.

Additional Problems

1. Find the antiderivative of cos(5 – 2x)

2. Find the antiderivative of $2/\sqrt{4 - 8x^2}$

3. Find the coordinates (x, y) of all maximum and minimum for

$$y = x^2 e^{-x^3/3}$$

Answers

1. antiderivative of cos(5 – 2x): cos5sin(2x)/2 – sin5cos(2x)/2 + C = [-sin(5 – 2x)]/2 + C. See pages 22 – 29. Make sure you know trig. Equations (4) on page 26 and cos(A – B) and sin (A – B) on page 29 for exercises 35 and 36.

2. antiderivative of $2/\sqrt{4 - 8x^2}$: $[1/\sqrt{2}]\sin^{-1}[\sqrt{2}x] + C$, that is the inverse sine function.

3. Max. at $x = \sqrt[3]{2}$ and $y = \sqrt[3]{4} \times e^{\frac{-2}{3}}$ or (1.26, 0.82)

   Min. at x = 0 and y = 0 or (0, 0)