Section 4.2 answers

1a) L = 500 – W

1b) A = 500W – W^2

1c) Domain $0 \le W \le 500$

1d) Width = 250 meters

1e) L = 250 meters

1f) A = 62,500 square meters

3a) L = 1000 – 2W
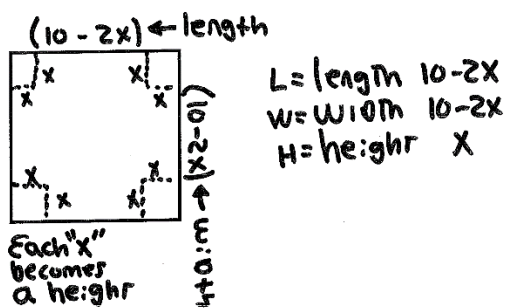
3b) A = 1000W – 2W^2

3c) Domain $0 \le W \le 500$

3d) Width 250 meters

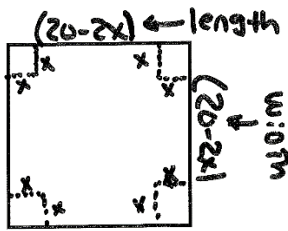3e) Length = 500 meters

3f) Area = 125,000 square meters

5a)

5b) V = 4x^3 – 40x^2 + 100x

5c) $0 \le x \le 5$

5d) x = 5/3 inches

5e) Volume = 74.07 cubic inches or 2000/27 cubic inches

7a)

$(20-2x) \leftarrow$ length

length $= L = 20-2x$
width $= w = 20-2x$
height $= H = x$

(20-2x) $\leftarrow$ width

7b) $V = 4x^3 - 80x^2 + 400x$

7c) $0 \leq x \leq 10$

7d) x = 10/3 inches

7e) Volume = 592.59 cubic inches or 16000/27 cubic inches