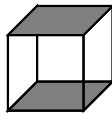


MA161 EXAM 3 PRACTICE — ALDEN BRADFORD — FALL 2018

1. A six-sided box is to have four clear plastic sides, a wooden square top, and a wooden square bottom. The volume of the box must be 24 ft^3 . Plastic costs \$1 per ft^2 and wood costs \$3 per ft^2 . Find the dimensions of the box which minimize cost.



2. Find and classify the local extreme value of $\sqrt{x} - \sqrt[4]{x}$.
3. Given only that $f''(x) = x^2 - 3$, at which of the following could be a local maximum of $f(x)$?
- (a) $x = 1$
 - (b) $x = 2$
 - (c) $x = 3$
 - (d) $x = 4$
 - (e) $x = 5$

4. A farmer is building two rectangular pens beside her barn, one which holds rabbits and one which holds chickens. In order to save on fence material, she puts one side of each pen against the barn, so that no fencing is needed on that side. Also, the two pens will share one of their sides. The area of each pen must be 37.5 ft^2 (so all together their areas add to make 75 ft^2). What is the smallest amount of fencing, in feet, required to complete this project?

