Quiz 10 (4/2/20) Name: Drill Time:

TA name:

Directions: This is a take-home quiz. It should be turned in online through blackboard using GradeScope by 11:59pm on **Tuesday April 7**.

Write your solutions on another sheet of paper. The only resources you may use are notes, books, other students *in* the class, the TAs and your instructor. Any other resources (e.g., a friend on your floor, the Internet in general, etc.) are *prohibited* and constitute cheating. When caught you will be referred to the Academic Integrity Office. **You will be graded for completeness and correctness. Include all supporting work. Because you have a long time to complete this, late work will NOT be accepted.**

1. (3 points) What point on the line $y = 2x + 4$ is closest to the origin?
2. (4 points) Squares with sides of length x are cut out of each corner of a rectangular piece of cardboard measuring 5 ft by 8 ft. The resulting piece of cardboard is then folded into a box without a lid. Find the volume of the largest box that can be formed in this way.
3. (3 points) A piece of wire of length 60 cm is cut and the resulting two pieces are formed to make a circle and a square. Where should the wire be cut to minimize the combined area of the circle and the square? Hint: Theorem 4.9 on page 262 of textbook allows you to avoid complicated comparisons.