

Name \_\_\_\_\_

Date Due: Monday, April 17<sup>th</sup>, 2017

Math 1411

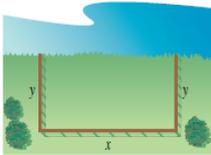
Word Problem Review for Final

T. Johnson

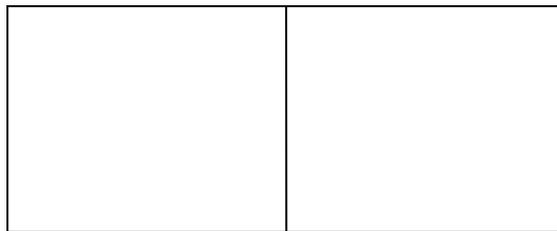
Score: \_\_\_\_/60

Ah, the word problem; the answer to the “why do we have to learn this?” question that every math student has and yet the bane of many math student’s existence. Practice these to get your brain rolling for the final exam. Each problem is worth 10 points. Complete the problems on regular paper, DO NOT try to cram all the work onto this page. Stapling of all pages is required. (Real staples, not foldy, foldy hope it holdy.)

1. At a sand & gravel plant, sand is falling off a conveyor and onto a conical pile at a rate of **16** cubic feet per minute. The diameter of the base of the cone is approximately three times the altitude. At what rate is the height of the pile changing when the pile is **12** feet high?
2. A farmer plans to enclose a rectangular pasture adjacent to a river. (see figure). The pasture must contain **405,000** square meters in order to provide enough grass for the herd. What dimensions will require the least amount of fencing if no fencing is needed along the river?



3. A ladder 10 feet long is resting against a wall. If the ladder is being pulled up the wall at a rate of 2 feet per second, how fast is the bottom of the ladder moving toward the wall when the top of the ladder is 6 feet off the ground?
4. A rancher has 400 feet of fencing with which to enclose two adjacent rectangular corrals (as shown in the drawing). What dimensions should be used so that the enclosed area will be a maximum?



5. A 13-ft ladder is leaning against a vertical wall when the foot of the ladder begins to slide away from the wall at a rate of 0.5 ft/sec. How fast is the top of the ladder sliding down the wall when the foot of the ladder is 5 ft from the wall?
6. A rectangular pen is built against a barn. Two hundred meters of fencing are to be used for the sides. What dimensions maximize the area?