

PART ONE (Choose any two items.)

ITEM ONE

- a) Due to land wrangle in the community, Jacob was advised to hire a land surveyor in order to measure his land and fence it to avoid intruders but there should be an entrance of 3 units left not fenced. The land is a rectangular and after measurement the surveyor discovered that the length was 2 units longer than the breadth and overall area is 35 square units. The man has one hundred ninety-six thousand for both labour and fencing materials.

Task

Given that 1 unit of the fencing material costs 6,000/=. Help the man to ascertain the money for labour alone.

- b) An old lady wants to construct a rectangular concrete tank to collect water home the tank is to be capacity $V(x) = x^3 + ax^2 - 6x - 8$ cubic units and has a height of $(x+1)$ units. The engineer who was contracted to construct the tank charges clients according to the size of the tank and every 1000 cubic units costs 300,000/=. However, a discount of 10% to every one who knows accurately the dimensions of the tank needed and standard tanks recommended by the engineer uses the value of x got from expression $x^{\frac{2}{3}} - 5x^{\frac{1}{3}} + 6 = 0$ that gives maximum volume.

Task

As a mathematics learner in A level. Help the lady to know the mount of money she will pay for construction considering a discount case.

c/o Ssebandeke Tonny, chem/Maths
practice makes improvement