Upper and Lower Bounds – www.m4ths.com – Steve Blades

(1)   The length of a field is 13 metres long and 20 metres wide, both to the nearest metre.
(a) Find the minimum area of the field.
(b) Find the maximum perimeter of the field.

(2)   The length of rectangle is 8.4cm and the width is 7.3cm. Both are accurate to 0.1cm.
(a) Find the maximum possible area of the rectangle.
(b) Find the least possible perimeter of the rectangle.

(3)   A = 25 to the nearest integer and B = 1.8 to 1 decimal place.
(a) Find the maximum value of A – B
(b) Find the minimum value of AB
(c) Find the minimum value of A ÷ B

(4)   The length of a swimming pool is 23m correct to 2 significant figures. The width of the pool is 42m correct to 2 significant figures. The depth of the pool is 1.8m correct to one decimal place
(a) Find the upper and lower bounds of the length of the pool
(b) Find the upper and lower bounds of the width of the pool
(c) Find the upper and lower bounds of the depth of the pool
(d) Find the maximum volume of the pool in m³

(5)   X = 430 to 2 SF   Y = 1.2 to 2 SF   Z = 5 to 1 SF
(a) Find the minimum value of XYZ
(b) Find the maximum value of X ÷ (Y + Z)

(6)   The formulae T = RQ² is used.
R = 40 to the nearest 10
Q = 12 to the nearest whole number.
Find the minimum value of T.

(7)   The formula P = M - N³
P = 300 to 1 significant figure.
N = 2.5 to one decimal place.
Find the least value of M.

(8)   The area of a rectangle is 40cm² correct to the nearest cm². One side length is 5cm correct to the nearest integer.
Find the maximum possible length of the longest side of the rectangle