6.4 Determine the estimated error in length of AE that was observed in sections as follows:

Section	Observed Length (m)	Standard Deviation (mm
AB	323.532	±3.2
BC	465.083	±3.3
CD	398.706	±3.2
DE	120.683	±3.0

= |BC)^2)+((dCD)^2)+((dDE)^2)) L= L1+L2+L3+L4

= 6.354 mm

1307.824	+/-	6.35	mm

6.7 A rectangular parcel has dimensions of 648.97 ± 0.018 ft by 853.03 ± 0.022 ft. What is the area of the parcel and the estimated error in this area?

A=LW

dA/dL(L) = W

dA/dw(W) = L

SA= sqrt(((dA/dL*SL)^2)+(dA/dW*SW)^2)

SW=	0.022	W=	853.03
SL=	0.018	L=	648.97

SA= 20.9667436 =====> 20.97 ft.

***6.9 The volume of a cone is given by V = 1/3πr^2h. A storage shed in the shape of a cone has a measured height of 30.0 ± 0.1 ft and radius of 30.0 ± 0.2 ft. What are the shed's volume and estimated error in this volume?**

V=1/3*pi*(r^2)*h

h=	30	+/-	0.1'
r=	30	+/-	0.2'

SA= sqrt(((dA/dL*SH)^2)+(dA/dW*Sr)^2)

dv/dh=	1/3*pi*r^2	8882.644
dv/dr=	2/3*pi*r*h	142122.3

Sr= 388.59355 ====> 388.6 ft

6.11 Using an EDM instrument the rectangular dimensions of a large building 600.87 ± 0.019 ft by 350.08 ± 0.016 ft are laid out. Assuming only errors in distance observations, what are the

L=	600.87	+/-	0.019	ft
W=	350.08	+/-	0.016	ft
	Perimeter	=		

(a) Area enclosed by the building and its standard deviation?

A= L*W = 210352.6 ft

DA/A= **sqrt((DL/L)^2)+(((DW/W)^2))**

11.690602 ==> 11.691

210352.57 +/- 11.691

(b) Perimeter of the building and its standard deviation?

P= 2L+2W

d/dL= 2+2w

d/dw= 2L+2 DP= sqrt(((DL)^2)+(DW)^2))

DA/A= **sqrt((DL/L)^2)+(((DW/W)^2))**

DA/A= 0.04967897

Now , 1901.9

1901.9 +/- 0.05