Q1) Compute the area of each cross-section shown in the figures below of parts of roadway to sta.21+00 if you know that the surface road width B = 12 m and side ½ .

12 Φ

1

2

29

12 9

A= ½ ( b/2(dR +dL)+d(XR+XL) )

XR=b/2 +∆R 9= 12/2+∆R ∆R =3 m

XL = b/2 + ∆L 12 = 12/2 +∆L ∆L=6 m

½ =dr/∆R ½ =dR /3 d R = 1.5m

½ = dL /∆L ½= dL/6 dL =3m

A= ½ (12/2(1.5+3)+1.5(9+12))=29.25 m2