

HW 10 Mech 417 Assigned 2/21/19 due 3/05/19

As sketched below a unit parametric triangle is mapped to the flat x-y plane and has a normal applied pressure acting upon it. The geometric and pressure data are:

Node	x(m)	y(m)	p(N/m <sup>2</sup> )
1	0	0	40
2	4	0.5	34
3	2	5	46

At the parametric point ( $r=0.37, s=0.24$ ) find:

- The coordinates on the plane
- The pressure at the point
- The 2 by 2 Jacobian matrix
- The determinant of the Jacobian matrix
- The inverse of the Jacobian matrix
- The local parametric pressure gradient
- The physical pressure gradient

Mech 517 What is the physical pressure gradient at parametric point (0.4, 0.4)?

