Pressure Control Homework

Data
Depth 12,125’  Hole size 7 7/8”  Drill Pipe 4 ½”
6” Drill Collars 1000’
$p_a$ 600 psi  $p_{dp}$ 400 psi  Pit Gain 21 bbls
Mud 9.8 #/gal  $T_{sur}$ 70F  Temp Grad 1.5F/100’

Bottom hole to be maintained 100 psi over reservoir pressure
Calculate @ the Casing seat 4500’ and at the surface