Question 1: Development of a Geomechanical Model

a. From the first homework assignment, what is the calculated gradient of the overburden stress of the site at 5725 feet depth in psi/ft?
   1.11 +- 0.111

b. From the seventh homework assignment, what is the given gradient of the minimum horizontal stress of the site at 5725 feet depth in psi/ft?
   0.65 +- 0.065

c. From the seventh homework assignment, what is the estimated lower bound of the gradient of the maximum horizontal stress of the site at 5725 feet depth in psi/ft?
   0.65 +- 0.065

d. From the seventh homework assignment, what is the given gradient of the pore pressure of the site at 5725 feet depth in psi/ft?
   0.48 +- 0.048

e. From the seventh homework assignment, what is the given coefficient of sliding friction of the site at 5725 feet depth?
   0.75 +- 0.075

Question 2: Identify Critically Stressed Fractures

>>a. Assuming an overburden stress gradient in the first homework assignment at a depth of 5725 feet, a minimum horizontal stress gradient in the seventh homework assignment at a depth of 5725 feet, a maximum horizontal stress gradient calculated from the lower bound of the maximum horizontal stress in the seventh homework assignment at a depth of 5725 feet, a pore pressure gradient in the seventh homework assignment at a depth of 5725 feet, a coefficient of sliding friction in the seventh homework assignment at a depth of 5725 feet, and assuming that the stress gradients, the pore pressure gradient, and the coefficient of sliding friction do not vary in the depth range of the Barnett_fractures.xls file in the fifth homework assignment, how many fractures in the Barnett_fractures.xls file are critically stressed?<<

(x) 0 to 2
( ) 3 to 5
( ) 6 to 8

[explanation]
[explanation]

>>b. Assuming an overburden stress gradient in the first homework assignment at a depth of 5725 feet, a minimum horizontal stress gradient in the seventh homework assignment at a depth of 5725 feet, a maximum horizontal stress gradient calculated from the lower bound of

the maximum horizontal stress in the seventh homework assignment at a depth of 5725 feet, a pore pressure gradient of 0.52 psi/ft (Montgomery et al., 2005), a coefficient of sliding friction in the seventh homework assignment at a depth of 5725 feet, and assuming that the stress gradients, the pore pressure gradient, and the coefficient of sliding friction do not vary in the depth range of the Barnett_fractures.xls file in the fifth homework assignment, how many fractures in the Barnett_fractures.xls file are critically stressed?<<

(x) 2 to 4
( ) 5 to 7
( ) 8 to 10

[explanation]
[explanation]

>>c. Assuming an overburden stress gradient in the first homework assignment at a depth of 5725 feet, a minimum horizontal stress gradient in the seventh homework assignment at a depth of 5725 feet, a maximum horizontal stress gradient calculated from the lower bound of the maximum horizontal stress in the seventh homework assignment at a depth of 5725 feet, a pore pressure gradient in the seventh homework assignment at a depth of 5725 feet, a coefficient of sliding friction of 0.45 (Kohli and Zoback, 2013), and assuming that the stress gradients, the pore pressure gradient, and the coefficient of sliding friction do not vary in the depth range of the Barnett_fractures.xls file in the fifth homework assignment, how many fractures in the Barnett_fractures.xls file are critically stressed?<<

(x) 9 to 11
( ) 12 to 14
( ) 15 to 17

[explanation]
[explanation]