

Q#1 (12 remarks)

For an undersaturated oil reservoir, plot the ideal inflow performance relationship,

Data: $P_r = 3000$ psia, $P_b = 2500$ psia, $P_{wf} = 2100$ psia, $Q_o = 200$ b/d, $FE = 0.6$.

Q#2 (12 remarks)

A saturated reservoir has the following data:

$P_r = 3000$ psi, $P_{wf} = 2100$ psi, $Q_o = 200$ b/d

Straight line Slope of Build-up horner plot = 50

Skin factor = +4

Plot the inflow performance relationship for the following:

- Actual conditions,
- Ideal case (Flow efficiency = 1),

Q#3 (12 remarks)

The following data pertain to a flowing well that has no surface choke. Calculate the production capacity by using P_{wh} as a pressure node.

Data:

$P_r = P_b = 2400$ psia, $P_{sep} = 100$ psi
Flowline size = 2 in, Flowline length = 3000 ft
Water cut = 0, GLR = 800 scf/ stb
Tubing size = 2.441 in, Tubing depth = 7000 ft
Test data: $P_{wf} = 2000$ psi, $Q_o = 710$ stb/day

Q#4 (12 remarks)

The following reservoir and completion data are pertain to a specific well.

Length of tubing	8500 ft
Flow rate	3000 b/d (100% oil)
Tubing diameter	4 inches
Wellhead pressure	120 psi
Average reservoir pressure	2500 psi
Productivity index	4.0 b/d/psi, (linear)
Gas oil ratio	400 scf/b

- Calculate the gas liquid ratio to flow the well.
- If gas is injected at the bottom of the tubing, calculate the amount of injected gas required per day.

Q#5 (12 remarks)

A well is tested and produced the following data:

Test #	Flow rate, (b/d)	Flowing bottomhole pressure, (psi)
1	250	2850
2	620	2550
3	900	2200
4	1050	2000

Average reservoir pressure, $P_r = 3000$ psi,
Bubble point pressure, $P_b = 3000$ psi.

Calculate the maximum flow rate by using:

- a) Fetkovich equation.
- b) Vogel's equation, (Point 4).















