

NOTE: Supplemental Materials pages 9-12
Page 9 Piper Graph Paper Page 10-11 Chemical Constants
Page 12 Well Functions

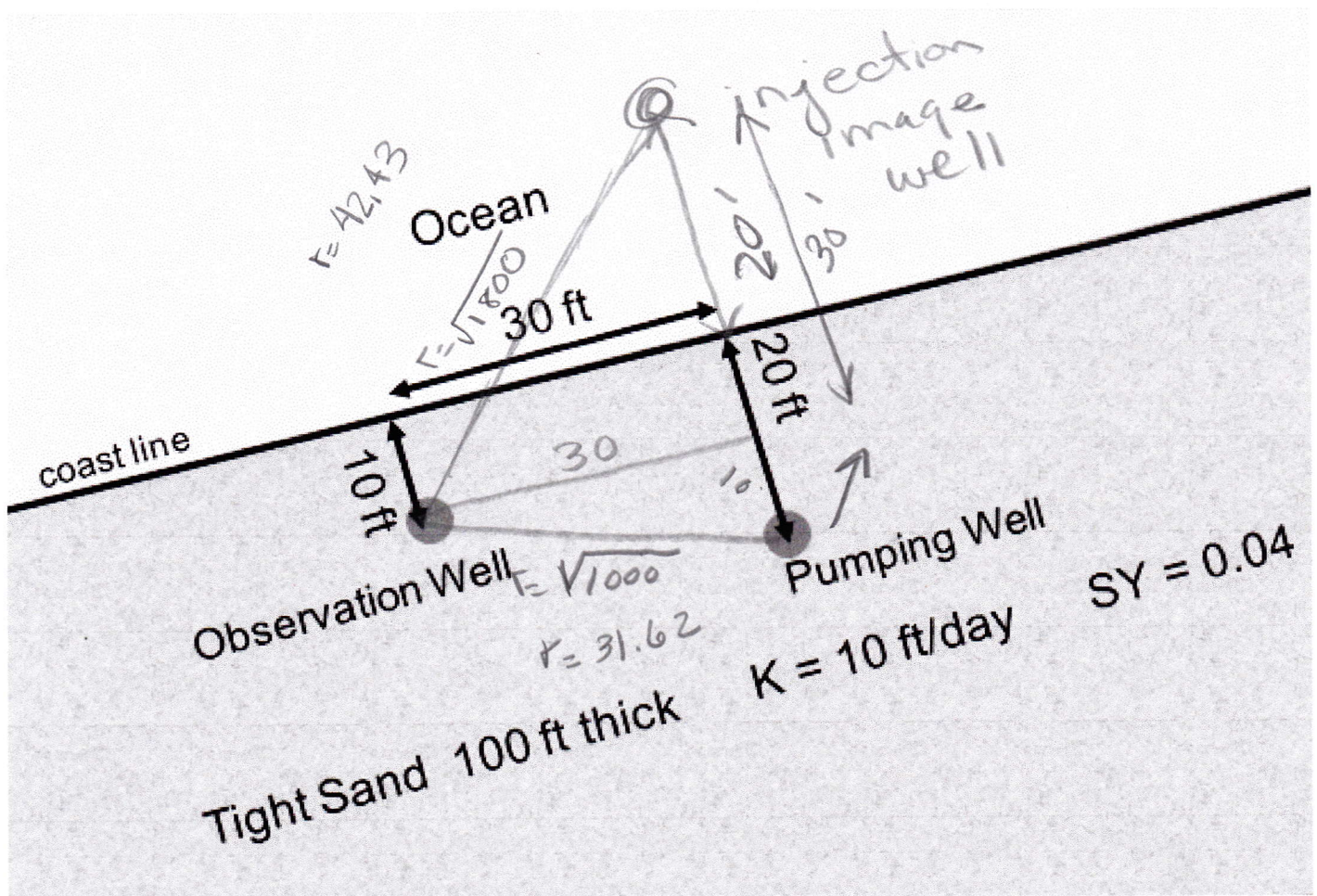
Note point values: Problem 1 and 2 are 30 points each
Problem 3 = 15 points Problem 4 = 25 points

PROBLEM #1 - 30 points USE UNITS of FEET and DAYS

ANSWER THE QUESTION ON THE FOLLOWING PAGE, SHOW YOUR WORK

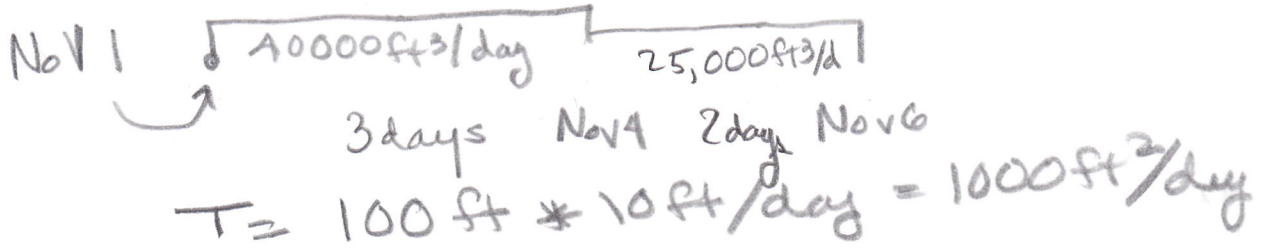
USE UNITS of FEET and DAYS

The pumping well in the figure below withdraws 40,000 ft³/day of groundwater beginning on Nov 1st at noon. At noon on Nov 4 the withdrawal of groundwater is decreased to a rate of 25,000 ft³/day. What is the drawdown at the observation well on Nov 6 @ noon?



PROVIDE CALCULATIONS AND ANSWERS TO PROBLEM 1 HERE

USE UNITS of FEET and DAYS SHOW YOUR WORK!!!!



| | | | |
|-----|--------------|-----------------------------|--------|
| sp1 | pumping well | 40,000 ft ³ /day | 5 days |
| sp2 | | -15,000 | 2 day |
| si1 | image well | -40,000 | 5 days |
| si2 | | +15,000 | 2 days |

$$u = \frac{r^2 S}{4Tt} = \frac{r^2 0.04}{4 \cdot 1000 \text{ ft}^2/\text{d} \cdot t} = \frac{r^2}{t} \cdot 1 \times 10^{-5}$$

$4\pi T = 12,566$

| | r^2 | t | u | $W(u)$ | Q | $s = \frac{Q W(u)}{4\pi T}$ |
|----------|-------|-----|----------------------|--------|---------|-----------------------------|
| SP1 | 1000 | 5 | 2×10^{-3} | 5.64 | 40000 | 17.95 |
| SP2 | 1000 | 2 | 5×10^{-3} | 4.73 | -15000 | -5.65 |
| SI1 | 1800 | 5 | 3.6×10^{-3} | 5.062 | -40000 | -16.11 |
| SI2 | 1800 | 2 | 9×10^{-3} | 4.14 | +15,000 | 4.94 |
| Σ | | | | | | 1.13 ft |