1. Water balance problem. The 78% tracer recovery suggests that there was 22% infiltration/seepage losses from the cells.

$(Q_{in} - Q_{out})$ - Losses = ΔStorage where Losses = L = ET + W

$$L = (378 - 354 \frac{m^3}{d})(\frac{30 d}{mo})(\frac{1}{16 \times 380 m^2})(\frac{100 cm}{m}) + (23.4 - 20.8 cm)$$

$$= 11.84 cm + 2.6 cm \quad 14.44 cm \text{ total loss}$$

$$L = ET + 0.22L \Rightarrow 0.78L = ET \quad \text{so } ET = 0.78(14.4) = \underline{\underline{11.3 cm}}$$

2. Manometer problem – the pressure @ the manometer connection is 4.1 m; from the connection to fluid x, the h = 4.1 m + 1.1 m = 5.2 m H_2O, therefore;

$$5.2 m H_2O = 0.2 m x + 2.5 m H_2O$$
$$2.7 m H_2O = 0.2 m X$$
$$X = \frac{2.7}{0.2} = \underline{\underline{13.5 gm/cm^3}} \sim \text{probably Hg}$$

3. (a) By counting blocks & triangles -- the total area = 610-611 ha

(b) The polygons result in a square centered on station C and symmetry areas for stations A & B and D & E.

Station	% Area	$P_i A_i$
A	17.4	0.348
B	17.4	0.435
C	20.2	0.606
D	22.5	0.225
E	22.5	0.540

$\Sigma P_i A_i$ = $\underline{\underline{2.15 cm}}$

(c) Gages C, D & E have the greatest influence. Given a 24% interception loss for Douglas Fir, the net, or effective ppt. = 2.15 * 0.76 = 1.6 cm or less, so this qualifies as a possible KHG storm.

4. Water Balance problem – note that DR = eff. ppt. = $\frac{72033 m^3}{611 ha}$ = 1.18 cm

Eff. Ppt. = total ppt – abstractions => Abst. = 2.15 – 1.18 = 0.97 cm

Abst. = Intercept + Infilt. + depression storage = 0.97
Intercept = 0.24 × 2.15 = 0.52 cm
so Infilt + storage = 0.97 – 0.52 = $\underline{\underline{0.45 cm}}$

5. The peak discharge = $(4.24 m^3/s)1.18 + 0.5 m^3/s$ = $\underline{\underline{5.5 m^3/s}}$
where 1.18 is the total DR from #4 expressed in cm