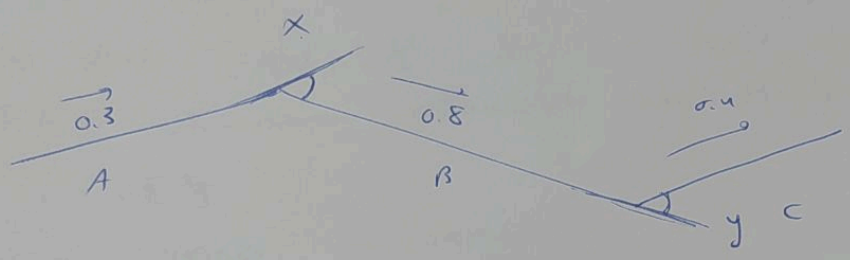
Abed No Azzam 1163156 ①

I PLEDGE NOT to use any help from anyone and not to communicate about the exam through form of media.

Q1:



1163156
587
D

Aircraft	A	B	C
C	+0.3	-0.8	+0.4

$x = 0.3 - {}^{-}0.8 = 1.1$

$y = {}^{-}0.8 - 0.4 = {}^{-}1.2$

figure 18-3b ⇒ $|1.1| + |1.2| = 2.3$

2.3×300 m

$= 690$ m.

Q2: a) minimum length of the runway.

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587 ⇒ C

B each B80 80°F msL
↳ 26.6°C

~~Table 18-1 and 18-2~~ figure 18-2 P. 547

T = 80°F SL ⇒ Runway length in ~~meter~~ feet = 4100'

airplanes

Queen Air
King Air
Airliner
King Air

k III-I Trilander

-2L

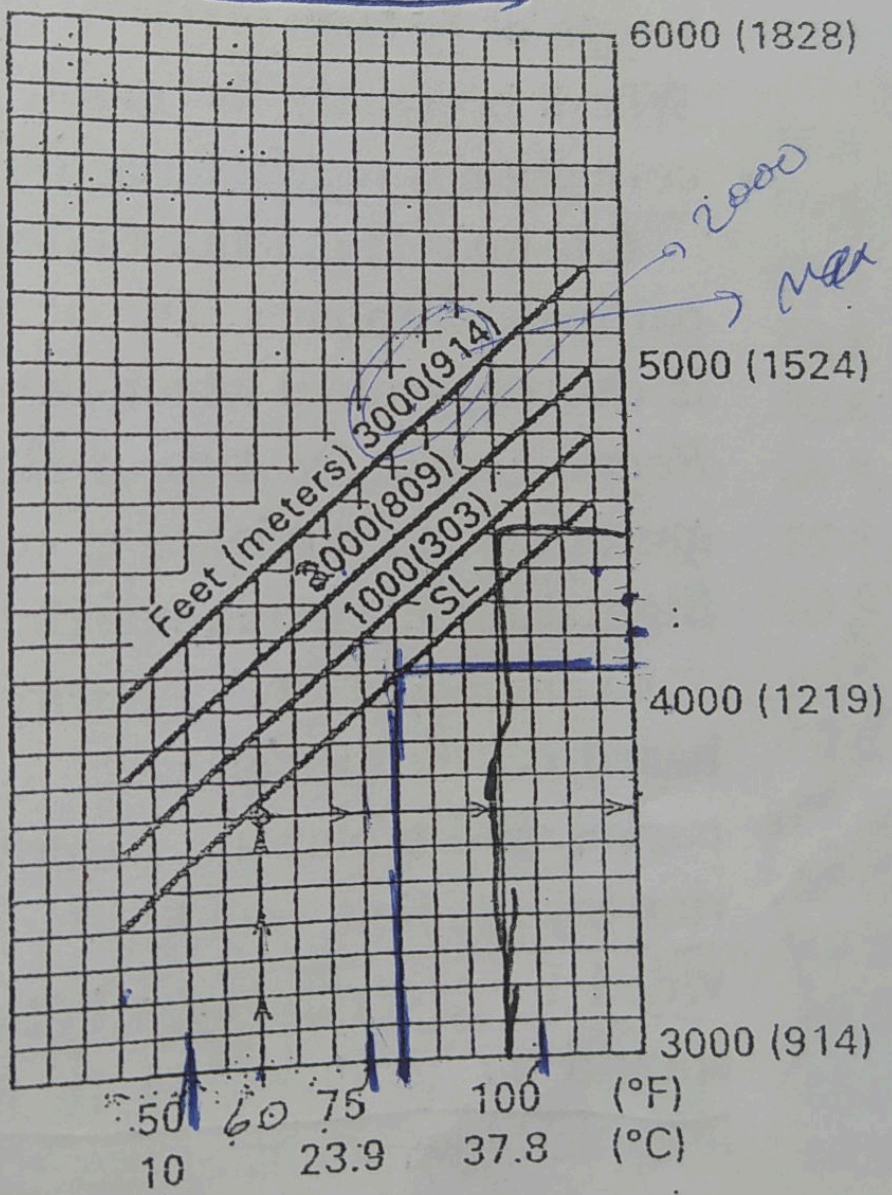
lin III-A
lin IV-A
ro II

Runway length curves

Example:
Temperature 59°F (15°C)
Airport elevation Sea level
Gen. utility 3700' (1 128 m)

Runway lengths

Note: For airport elevations above 3000 feet (914m) use the 100% curve, figure 8-1



Q2) b)

1163156 (2)

A) Reference

Airport ele	Temp	Takeoff
1000	30°C	95

10 meter

Landing 2.5 km

Run way length

Table 18-2 take off 30°C - 1000

107.5 + Maximum allowable take of > 95 ± ✓

R = 65.4

Run way height in meter

Different between highest and least Point

interpolation at weight 95 and R 60 65.4 70

2205 2599

10 m ⇒ 32.8 ft × 10 ft = 328 ft

S = 99.97 = 100 m

minimum Required length at the runway → 65.4 ⇒ 2417.76 m.

Final = 2517.76 m

1163156 (1)

Q3) Maximum wave length

A) $U_2 = 17$

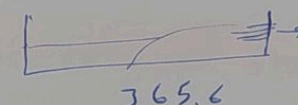
6 m shallow water Depth = 20

1- $U_A = 0.71\, U^{1.23} = 23.16$ wind stress factor.

$$\frac{gd}{U_A^2} = \frac{9.81(6)}{23.16^2} = 0.109 \approx 0.1$$

$$\frac{gf}{U_A^2} = \frac{9.81(20000)}{23.16^2} = 365.8$$

↳ figure 19.4 P. 590



$$\frac{gH}{U_A^2} = 0.022 \Rightarrow H = 1.2$$

Check Fig 19.7 shallow water

H = 1 and 1.25

1.23

so close

$H_{max} = 1.2 * 1.87 = 2.24$ m.

wave length

Table 18-2 Runway Length Table: Aircraft Performance, Takeoff (Boeing 757-232 Series) PW 2037 Engine, 5° Flaps

Temperature (°C)	By Airport Elevation in Meters					
	0 m	500 m	1000 m	1500 m	2000 m	2500
	Maximum Allowable Takeoff Weight (1000 kg)					
10	108.9	108.9	108.9	108.9	108.9	108
12	108.9	108.9	108.9	108.9	108.9	108
14	108.9	108.9	108.9	108.9	108.8	104
16	108.9	108.9	108.9	108.9	107.7	103
18	108.9	108.9	108.9	108.9	106.4	101
20	108.9	108.9	108.9	108.9	105.0	100
22	108.9	108.9	108.9	108.9	103.4	98
24	108.9	108.9	108.9	107.9	101.7	97
26	108.9	108.9	108.9	106.0	100.0	95
28	108.9	108.9	107.5	104.1	98.1	93
30	108.9	108.9	105.5	102.1	96.1	91
32	108.9	108.4	103.4	100.0	94.1	89
34	108.9	106.5	101.3	97.8	91.9	87
36	108.9	104.5	99.0	95.6	89.7	85
38	108.9	106.5	96.7	93.2	87.4	82
40	104.5	99.9	94.1	90.8	85.1	80
42	105.3	97.3	91.4	88.3	82.7	77
44	103.0			85.7	80.3	75

Temperature (°C)	By Airport Elevation in Meters					
	0 m	500 m	1000 m	1500 m	2000 m	2500
	Reference Factor *R*					
10	52.1	54.8	58.2	62.7	68.5	76
12	52.2	54.7	58.2	62.9	69.1	77
14	52.3	54.8	58.3	63.2	69.8	78
16	52.4	54.9	58.6	63.7	70.6	79
18	52.6	55.2	59.0	64.4	71.7	81
20	52.8	55.6	59.6	65.3	72.9	83
22	53.1	56.2	60.4	66.3	74.4	85
24	53.5	56.8	61.4	67.6	76.0	87
26	53.9	57.6	62.5	69.1	78.0	90
28	54.5	58.6	63.8	70.8	80.1	93
30	55.1	59.7	65.4	72.8	82.6	96
32	56.0	61.0	67.1	75.0	85.3	100
34	56.9	62.4	69.0	77.5	88.3	104
36	58.0	64.0	71.2	80.2	91.6	108
38	59.3	65.7	73.6	83.3	95.2	113
40	60.7	67.7	76.2	86.6	99.1	118
42	62.4	69.8	79.0	90.2	103.4	123
44	64.2	72.1	82.1	94.1	108.1	129

Weight (1000 kg)	Runway Length in Meters							
	Reference Factor *R*							
	60	70	80	90	100	110	120	130
60	941	1087	1245	1401	1540	1648	1711	1715
65	1093	1259	1418	1569	1711	1844	1966	2076

232

Table B-2 ... Length ... Series) PW

	60	70	80
106.4	1247	1438	1617
104.9	1409	1630	1843
103.4	1581	1838	2096
101.9	1769	2067	2377
100.3	1975	2319	2685
98.6	2205	2599	3022
97.0	2462	2912	3388
95.3	2750	3261	3782
93.5	3074	3650	4207
91.7			
89.9			
88.0			
86.1			

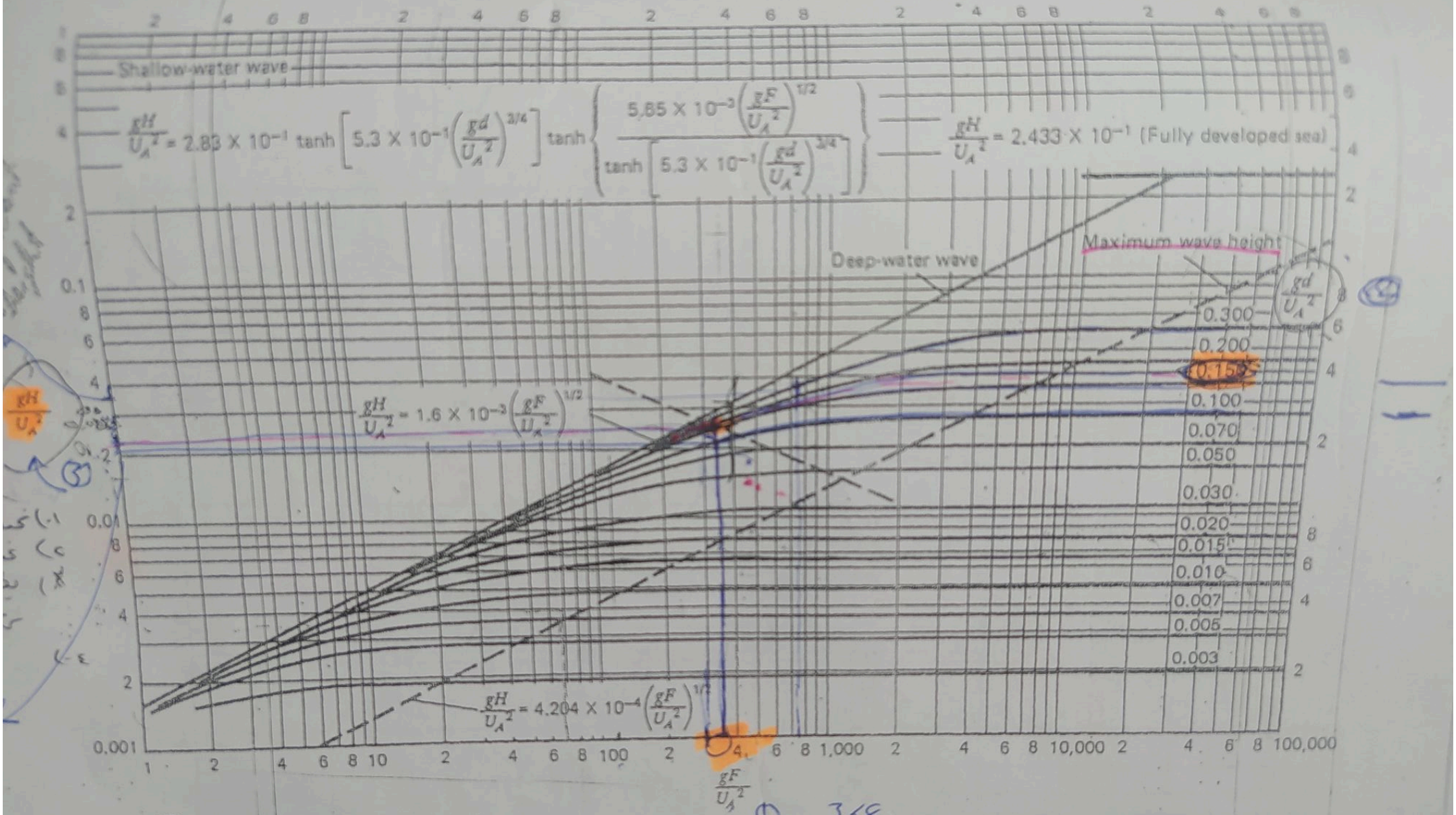


Figure 19-4 Forecasting curves for wave height. Constant water depth. (Source: Reference 8.)

Figure 19-6 Nomogram of deep-water significant wave prediction curves as functions of wind-stress factor, fetch length, and wind duration. (Source: Reference 8.)

Deep Water

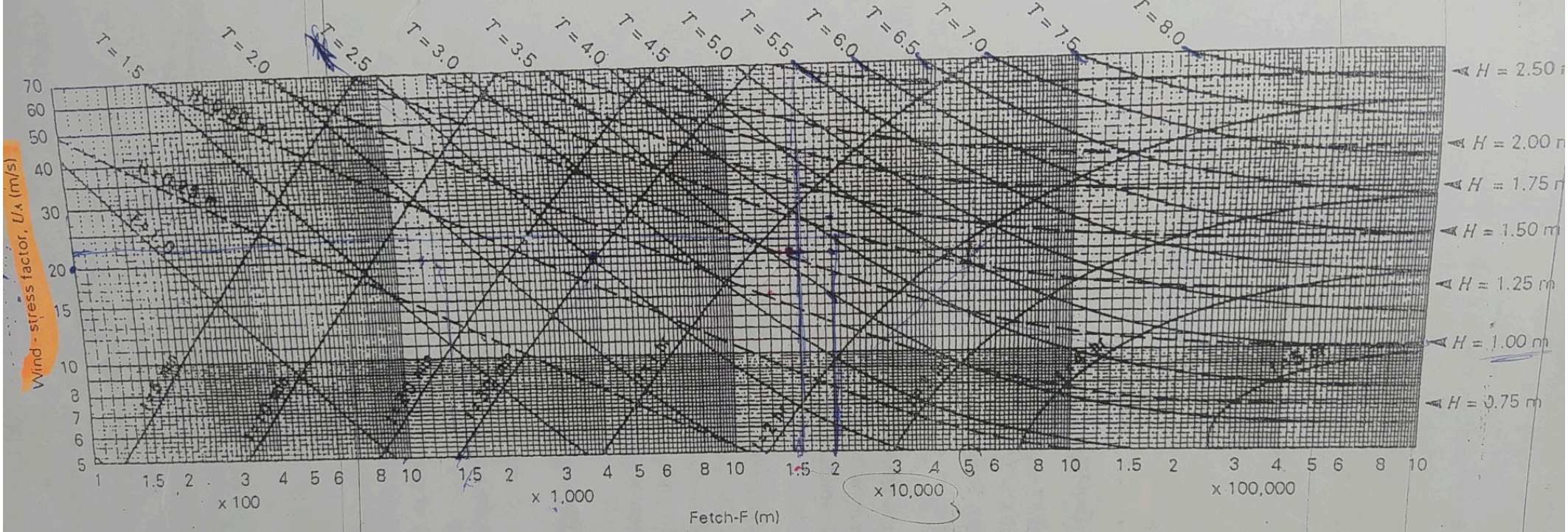


Figure 19-7 Forecasting curves for shallow-water waves with constant depth = 6.0 m. (Source: Reference 8.)

Fetch - do in ∞

Shallow Water
w/ d = 6 m

19.7

19.6.2 check

Q4) European traffic $n = mgt$

	1	2	3	4
Taxi in	6	6	6	6
Passenger deplaning	16	-	-	-
Bagging out	—	20		
Fuel	-	—	28	
cleaning	27			
~~Food~~ receiving	-	42		
Bagging in	~~35~~ -	35		
Passenger in enplaning	24			
take out	6	6	6	6
Sum	79	109	40	18

$n = mgt$

$= (5+4)\left(\frac{109}{60}\right)\left(\frac{45}{60}\right)$

$= 12.26$ number of stands

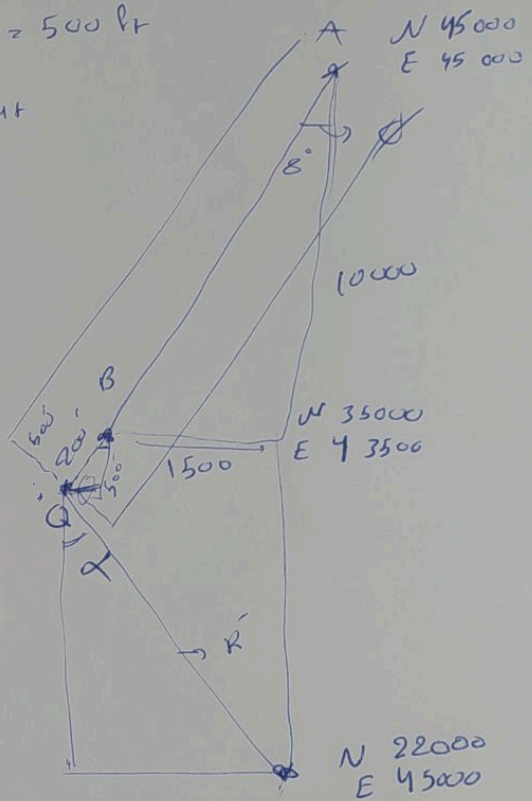
II

(Q5)

(4)

Highest Point on Runways
Hm elev. = 600 ft
Low elev = 500 ft

Determine the high at
N = 22000
E = 45000



group I

Primary surface

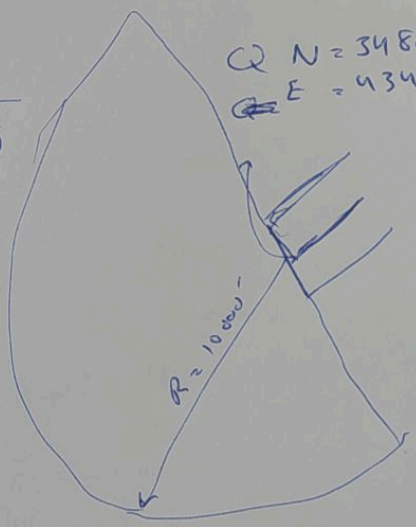
RW Length = $\sqrt{10\,000^2 + 1500^2}$ = 10.111

Tan Ø = $\frac{1500}{10000}$ ⇒ Ø = 8° 31′ 50″

Q N = 35 000 − 200 Cos Ø = 34802.2

Ø E = 43500 − 200 Sin Ø = 43470.3

Azimuth AB = 180 + 8° 31′ 50″
= 188° 31′ 50″



Horizontal Surface

R′ = $\sqrt{(34802 - 22000)^2 + (45000 - 43475.3)^2}$

= 12 892.475 feet

10000 → 150°

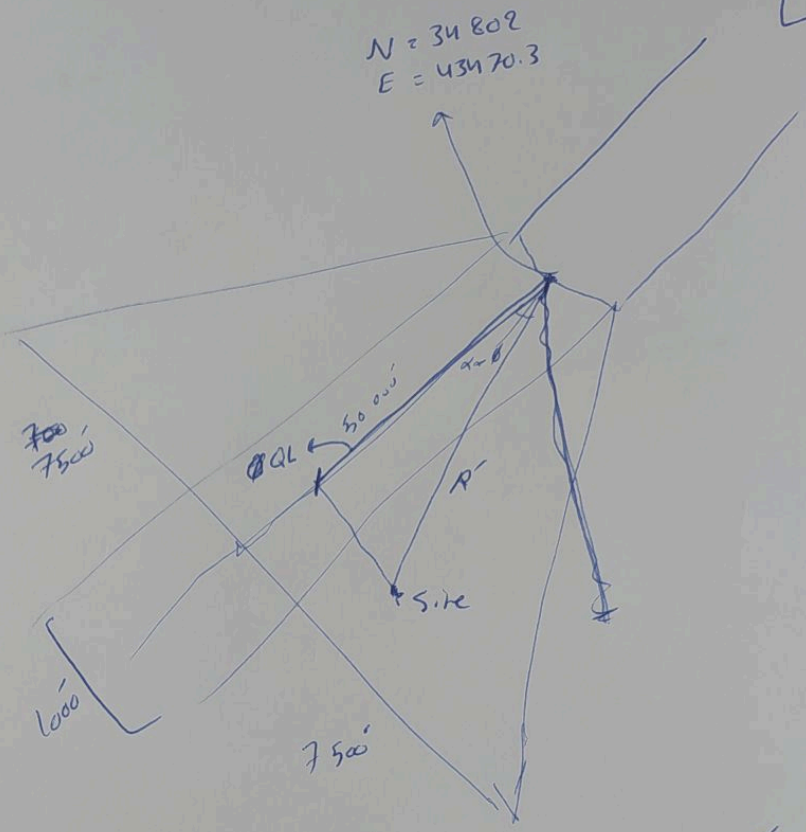
$\frac{2\,892}{20}$ = 144.6°

High from group I = 244.6

$\alpha = \tan^{-1}\frac{\Delta E}{\Delta N}$ = 6° 47′ 30″

Group II

Approved



QL = distance along Kumwai CL

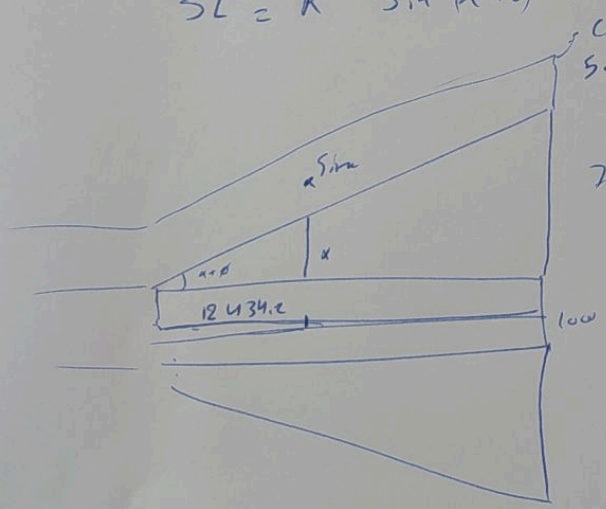
= R' cos (α+ϕ) = 12 892.5 (0.964)

= 19434.2

α + ϕ

= 15° 19' 20"

SL = R' Sin (α+ϕ) = 3406.8



$\frac{x}{7500} = \frac{12434}{50000} \Rightarrow x = 18651$

total H_{tg} = 500 + 18651

= 2365 < 3406.8

Approach = $\frac{10000}{50} + \frac{2434}{40}$

Approach = 260.85'

3406.8 - 2365 = $\frac{1041.8}{7}$

= 148.8'

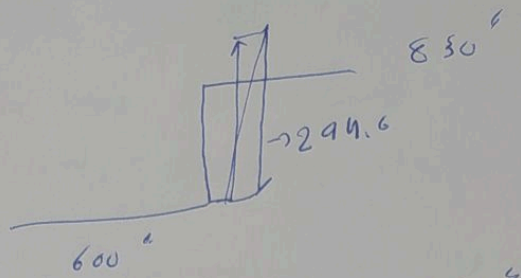
total from group II

= 260.85 + 148.8

= 409.67'

group I control

50 ←



850 - 600 = 250

294.6 - 250 = 44.6

around 13.5 m
3 Floors.

Q6) 1163156 even

to users : the users want the airport to be ~~as~~ so close to them to not waste time during reaching them.

to communing : it is not healthy to airport beside them as and ~~to~~ because of (polution, and safety, also the noise.

Q7) 1163156 odd.

locks used to raising and lowering boats and ships also to make rivers navigable.