

EduSahara™ Learning Center Assignment

Grade : Class X, ICSE

Chapter : Heights and Distances

Name : Heights and Distances using Tables - 2

From a point 70 mt away from a vertical cliff, the angles of elevation of the top and the foot of a vertical pillar at the top of the cliff are $50^\circ 41'$ and $46^\circ 3'$ respectively. Find the height of the cliff

1.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
46	1.0355	1.0392	1.0428	1.0464	1.0501	1.0538	1.0575	1.0612	1.0649	1.0686	6	12	18	25	31

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
50	1.1918	1.1960	1.2002	1.2045	1.2088	1.2131	1.2174	1.2218	1.2261	1.2305	7	14	22	29	36

- (i) 69.61 mt
- (ii) 67.61 mt
- (iii) 77.61 mt
- (iv) 72.61 mt
- (v) 75.61 mt

From a point 90 mt away from a vertical cliff, the angles of elevation of the top and the foot of a vertical pillar at the top of the cliff are $35^\circ 25'$ and $20^\circ 18'$ respectively. Find the height of the pillar

2.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
20	0.3640	0.3659	0.3679	0.3699	0.3719	0.3739	0.3759	0.3779	0.3799	0.3819	3	7	10	13	17

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
35	0.7002	0.7028	0.7054	0.7080	0.7107	0.7133	0.7159	0.7186	0.7212	0.7239	4	9	13	17	22

- (i) 33.71 mt
- (ii) 25.71 mt
- (iii) 30.71 mt
- (iv) 35.71 mt
- (v) 27.71 mt

The angles of depression of two boats from the top of a cliff 60 mt high are 28° and 20° respectively. Find the distance between the boats, if the boats are on the same side of the cliff

3.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
62	1.8807	1.8887	1.8967	1.9047	1.9128	1.9210	1.9292	1.9375	1.9458	1.9542	14	27	41	55	68

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
70	2.7475	2.7625	2.7776	2.7929	2.8083	2.8239	2.8397	2.8556	2.8716	2.8878	26	52	78	104	133

- (i) 52.01 mt
- (ii) 47.01 mt
- (iii) 55.01 mt
- (iv) 57.01 mt
- (v) 49.01 mt

The angles of depression of two boats from the top of a cliff 160 mt high are 28° and 40° respectively. Find the distance between the boats, if the boats are on the opposite sides of the cliff

4.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
62	1.8807	1.8887	1.8967	1.9047	1.9128	1.9210	1.9292	1.9375	1.9458	1.9542	14	27	41	55	68

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
50	1.1918	1.1960	1.2002	1.2045	1.2088	1.2131	1.2174	1.2218	1.2261	1.2305	7	14	22	29	36

- (i) 513.60 mt
- (ii) 491.60 mt
- (iii) 465.60 mt
- (iv) 497.60 mt
- (v) 486.60 mt

A man on the top of a vertical observation tower observes a car moving at a uniform speed coming directly towards him. If it takes 13 min. for the angle of depression to change from 21° to 23° , how soon after this, will the car reach the observation tower?

5.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
21	0.3839	0.3859	0.3879	0.3899	0.3919	0.3939	0.3959	0.3979	0.4000	0.4020	3	7	10	13	17

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
23	0.4245	0.4265	0.4286	0.4307	0.4327	0.4348	0.4369	0.4390	0.4411	0.4431	3	7	10	14	17

- (i) 122 min. 55 sec
- (ii) 120 min. 52 sec
- (iii) 121 min. 54 sec
- (iv) 123 min. 56 sec
- (v) 124 min. 57 sec

6. From a point 150 mt above a lake, the angle of elevation of a cloud is 35° and the angle of depression of its reflection in the lake is 60° . Find the height of the cloud from the lake

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
35	0.7002	0.7028	0.7054	0.7080	0.7107	0.7133	0.7159	0.7186	0.7212	0.7239	4	9	13	17	22

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'

60	1.7321	1.7391	1.7461	1.7532	1.7603	1.7675	1.7747	1.7820	1.7893	1.7966	12	24	36	48	60
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(i) 336.57 mt (ii) 358.57 mt (iii) 353.57 mt

(iv) 339.57 mt (v) 376.57 mt

At the foot of a mountain, the elevation of its summit is 44° . After ascending 800 mt towards the mountain up an incline of 26° , the elevation changes to 61° . Find the height of the mountain.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
44	0.9657	0.9691	0.9725	0.9759	0.9793	0.9827	0.9861	0.9896	0.9930	0.9965	6	11	17	23	28

7.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
61	1.8040	1.8115	1.8190	1.8265	1.8341	1.8418	1.8495	1.8572	1.8650	1.8728	13	26	38	51	64

From Table of Natural Cosines															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
26	0.8988	0.8980	0.8973	0.8965	0.8957	0.8949	0.8942	0.8934	0.8926	0.8918	1	3	4	5	7

From Table of Natural Sines															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
26	0.4384	0.4399	0.4415	0.4431	0.4446	0.4462	0.4478	0.4493	0.4509	0.4524	3	5	8	11	13

(i) 1060.30 mt

(ii) 810.30 mt

(iii) 1210.30 mt

(iv) 1090.30 mt

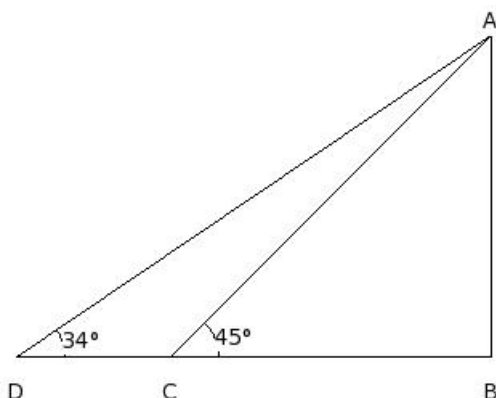
(v) 1330.30 mt

The shadow of a vertical tower BA on a level ground is increased by 25 mt, when the altitude of the sun changes from 45° to 34° . Find the height of the tower

8.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
45	1.0000	1.0035	1.0070	1.0105	1.0141	1.0176	1.0212	1.0247	1.0283	1.0319	6	12	18	24	30

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
34	0.6745	0.6771	0.6796	0.6822	0.6847	0.6873	0.6899	0.6924	0.6930	0.6976	4	9	13	17	22



- (i) 54.80 mt (ii) 56.80 mt (iii) 46.80 mt
(iv) 51.80 mt (v) 48.80 mt

A boy standing on a vertical cliff in a jungle observes two rest houses in line with him on opposite sides deep in the jungle below. If their angles of depression are 34° and 20° and the distance between them is 185 mt, find the height of the cliff

9.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
34	0.6745	0.6771	0.6796	0.6822	0.6847	0.6873	0.6899	0.6924	0.6930	0.6976	4	9	13	17	22

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
20	0.3640	0.3659	0.3679	0.3699	0.3719	0.3739	0.3759	0.3779	0.3799	0.3819	3	7	10	13	17

- (i) 48.74 mt
(ii) 40.74 mt
(iii) 46.74 mt
(iv) 43.74 mt
(v) 38.74 mt

A man in a boat rowing away from a lighthouse 45 mt high, takes 3.5 min. to change the angle of elevation of the top of the lighthouse from 40° to 32° . Find the speed of the boat.

10.

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
32	0.6249	0.6273	0.6297	0.6322	0.6346	0.6371	0.6395	0.6420	0.6445	0.6469	4	8	12	17	21

From Table of Natural Tangents															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
40	0.8391	0.8421	0.8451	0.8481	0.8511	0.8541	0.8571	0.8601	0.8632	0.8662	5	10	15	20	25

- (i) 7.09 m/sec
(ii) 2.09 m/sec
(iii) 0.09 m/sec
(iv) 1.09 m/sec
(v) 8.09 m/sec

Two vertical poles are on either side of a road. A 33 mt long ladder is placed between the two poles. When the ladder rests against one pole, it makes an angle of $38^\circ 42'$ with the pole and when it is turned to rest against another pole, it makes an angle of $42^\circ 52'$ with the road. Find the width of the road

11.

From Table of Natural Cosines															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
38	0.7880	0.7869	0.7859	0.7848	0.7837	0.7826	0.7815	0.7804	0.7793	0.7782	2	4	5	7	9

From Table of Natural Cosines															
x°	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	1'	2'	3'	4'	5'
42	0.7431	0.7420	0.7408	0.7396	0.7385	0.7373	0.7361	0.7349	0.7337	0.7325	2	4	6	8	10

- (i) 49.94 mt

- (ii) 46.94 mt
 - (iii) 52.94 mt
 - (iv) 54.94 mt
 - (v) 44.94 mt
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Assignment Key

- 1) (iv)
- 2) (iii)
- 3) (i)
- 4) (ii)
- 5) (i)
- 6) (iii)
- 7) (iv)
- 8) (iv)
- 9) (iv)
- 10) (iii)
- 11) (i)