

Instrument Rating EPG 2018

Section 3.2 – Altimeter Setting Procedures and Altimeter Errors Questions

Question 13

Note: You will need to use the cold weather correction tables from the CAP GEN for this question:

To use the tables, you will need the temperature at the airport which has to be estimated from the OAT assuming ISA conditions.

OAT at aeroplane indicated altitude = -40°C
Your indicated altitude is 9,600'
Aerodrome elevation is 1,712'
Environmental lapse rate is $2^{\circ}\text{C}/1000'$



Estimated temperature at aerodrome elevation will be

$$\begin{aligned} &= -40 + \left(\frac{9600 - 1712}{1000} \right) (2) \\ &= -40 + \left(\frac{7888}{1000} \right) (2) \\ &= -40 + 15.8 \\ &= -24.2^{\circ}\text{C} \end{aligned}$$

You will thus need to read the altitude correction required from the tables for a temp of -24.2°C and a height difference of 7,888 feet. This will require interpolation. The tables only go up to 5,000 feet above the altimeter source, so you will have to add the corrections for 5,000 ft, 2,000 ft, and 888 ft to get the solution.

The correction for 5,000 ft at -24.2°C is 810.8 ft:

AERODROME TEMP $^{\circ}\text{C}$	HEIGHT ABOVE ALTIMETER SETTING SOURCE (ft)
	5000
-20	710
-24.2	810.8
-30	950

The correction for 2,000 ft at -24.2°C is 322 ft:

AERODROME TEMP °C	HEIGHT ABOVE ALTIMETER SETTING SOURCE (ft)
-20	280
-24.2	322
-30	380

The correction for 888 ft at -24.2°C is 145.1 ft:

AERODROME TEMP °C	HEIGHT ABOVE ALTIMETER SETTING SOURCE (ft)		
	800	888	900
-20	120		130
-24.2	132.6	145.1	146.8
-30	150		170

Adding the corrections for 5,000 ft, 2,000 ft and 888 ft we get a total correction of 1,277.9 ft for an altitude above Smithers, BC of 7,888 ft. This means that you are 1,277.9 ft lower than indicated.

The aeroplane's true altitude is thus $9,600' - 1,277.9' = 8,322.1'$

The mountain height is 8,450'.

Clearance above the mountain is therefore $8,322.1' - 8,450' = -127.9'$ (negative clearance means that you are below the top of the mountain).

The correct answer is: *a) Below the top of the mountain*