TIME ZONES

1. a) 5 hours less is 12:00 – 5:00 ◎ **7:00)**

    b) we need to move the watch 5 hours back: if we move 4½ hours back at 4:30 it will be midnight, so there is 30 minutes left and the final time is half an hour before midnight, i.e 23:30 (it is possible that students find out the formal calculation 4:30 – 5:00 + 24:00 ◎ **23:30**)

    c) 5 hours before 0:15 is the same time as 4¾ hours before midnight, the result is **19:15** (here again the calculation 0:15 – 5:00 + 24:00 ◎ 19:15 can be used), other possibility is to figure out at first what time it is 5 hours before 0:00 (it is 19:00) and then move this time 15 minutes forward to 19:15.

2. In the sought time zone it is 7 hours less, so it is marked as **UTC-7.** It is possible that students will suggest UTC+19 for an answer (because 6:15 + 19:00 = 23:19). Such a time zone doesn't exist. You have to let them check it in the sources which they will seek on their own.

3. Bratislava is in the UTC+1 time zone , Peru in the UTC-5 zone and therefore it is always 6 hours less in Peru than in the UTC+1 time zone.

    a) 13:20 – 6:00 = **7:20**

    b) 6 hours before 4:35 is **22:35** („6 hours before 4:00 plus 35 minutes")

    c) summer time (ST) is put 1 hour forward so 14:15 ST is in reality 13:15 in the UTC+1 time zone, 6 hours less is **7:15**

    d) 3:20 ST is in reality 2:20, 6 hours less is **20:20**

4. at **5 o'clock** in the afternoon (i.e. at **17:00**) local time

    We need to add 41 (i.e 24+17) hours to the time 22:00 and we need to put the result 2 hours forward (in the time zone UTC+3 it is 2 hours more than in the UTC+1): After 24 hours it will be 22:00 again, following 17 hours we can divide to 2+15: after 2 hours the time will be 24:00, after the addition of 15 remaining hours the time will be 15:00, in Moscow it is two hours more and so the result is 17:00.

    24th June at 9:07

    148 hours 47 min = 6 × 24 hours + 4 hours 47 min.

    When 6 × 24 hours pass from the time 21:20 on June 17th, it will be June 23rd, 21:20 in Moscow. After next 4 hours and 47 minutes it will be June 24th, 2:07. In Vladivostok it is 7 hours more than in Moscow so, it will be 9:07 in Vladivostok at that time.

5. **45 hours 52 minutes**

    It is 3 hours more in Novosibirsk than in Moscow, at the arrival time of the train it was June 22nd, 21:45 in Moscow. Now, it is enough to find out how many hours it is from 23:53 on June 20th to 21:45 on June 22nd. It would be two whole days till June 22nd, 23:53, i.e. 48 hours, you have to subtract 2hours and 8 minutes from this time (it is the time between 21:45 and 23:53 which we have added to it before) and so the result is 45 hours and 52 minutes.