Answer key: Instant vs Time Interval

Physics with Tiaotiao 跳跳 · Kinematics · High School Physics
Study sheet for the video "Instant vs Time Interval": answer key

Answers and explanations

Tap a blue time to jump to the part of the video that explains the question.

1. **(1) I** **(2) T** **(3) T** **(4) T** **(5) I** **(6) T** **(7) T**
Points in time: 5:00 and 3 a.m. Stretches of time: 2 days, 7:00 to 12:00, over ten hours, half an hour, forty minutes.
▶ **Watch 2:35, Warm-up**

2. **A**. A runs from 7:00 to 7:30 p.m., so it is a time interval.
B 0:00 on 1 July is one instant, not a stretch of time.
C The ceremony began right after 8 p.m. Read C as 8:00:00 p.m.: an instant.
D The launch happened at that one instant, even though the time is given to the second.
▶ **Watch 5:29, Example 1**

3. (1) **interval** (2) **interval** (3) **instant** (4) **instant** (5) **instant** (6) ***n*−1 to *n***
Set $n = 1$ to check (6): the 1st second is 0 to 1, so the nth second is $n-1$ to n.
▶ **Watch 7:15, Phrases**

4. **B**. t_2 to t_3 is a stretch, so it is a time interval. Counting from 0: 0 to 1 is the 1st second, 1 to 2 the 2nd, 2 to 3 the 3rd.
A t_2 is a point, so it is an instant. "End of the 2nd second or start of the 3rd" is right, but "within 2 s" is a stretch. A point can't also be a time interval.
C 0 to t_2 is "the first 2 s", but not "the 2nd second". The 2nd second is only 1 to 2.
D Set $n = 1$: t_{n-1} to t_n becomes t_0 to t_1, which the option calls the "0th second". There is no 0th second. Change $n-1$ to n and D is right.
▶ **Watch 10:31, Example 2**