

- 22** The warning signal on an ambulance has a frequency of 600 Hz. The speed of sound is  $330 \text{ m s}^{-1}$ . The ambulance is travelling with a constant velocity of  $25 \text{ m s}^{-1}$  towards an observer. The ambulance passes, and then moves away from the observer with no change in velocity.

initial position  
of ambulance



observer

final position  
of ambulance



Which overall change in observed frequency takes place between the times at which the ambulance is a long way behind the observer and when it is a long way in front of the observer?

**A** 49 Hz

**B** 84 Hz

**C** 91 Hz

**D** 98 Hz