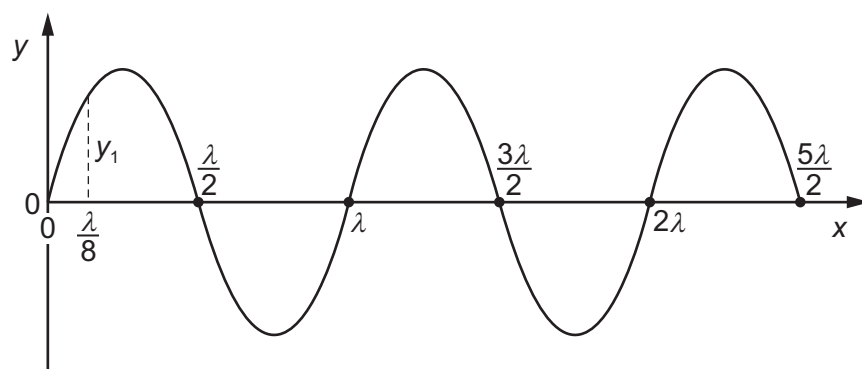


- 24** A transverse progressive wave of wavelength  $\lambda$  is set up on a stretched string. The graph shows the variation of displacement  $y$  with distance  $x$  at a particular instant of time. The displacement where distance  $x = \frac{\lambda}{8}$  is  $y_1$ .



What are the next two values of  $x$  where the displacement  $y$  is again equal to  $y_1$ ?

- A**  $\frac{3\lambda}{8}$  and  $\frac{5\lambda}{8}$
- B**  $\frac{3\lambda}{8}$  and  $\frac{9\lambda}{8}$
- C**  $\frac{5\lambda}{8}$  and  $\frac{9\lambda}{8}$
- D**  $\frac{9\lambda}{8}$  and  $\frac{17\lambda}{8}$
- 25** A man standing next to a stationary train hears sound of frequency 400 Hz emitted from the train's horn. The train then moves directly away from the man and sounds its horn when it has a speed of  $50 \text{ ms}^{-1}$ . The speed of sound is  $340 \text{ ms}^{-1}$ .

What is the difference in frequency of the sound heard by the man on the two occasions?

- A** 51 Hz                      **B** 69 Hz                      **C** 349 Hz                      **D** 469 Hz