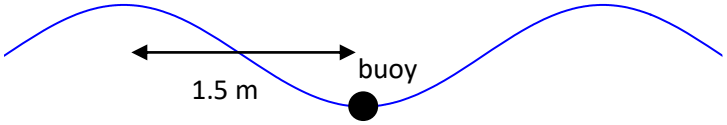
Quiz C13

The wave model

1. The period of a wave is 200 ns. What is its frequency?

A 5.0 GHz **B** 5.0 MHz **C** 5.0 kHz **D** 5.0 mHz

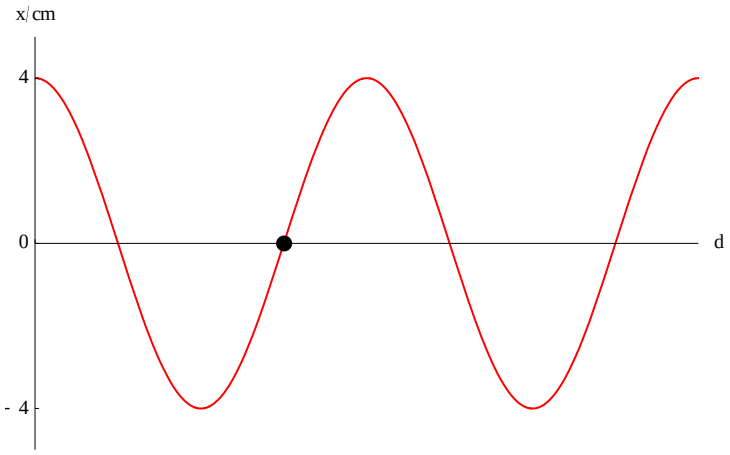
2. A buoy bobs up and down as waves go by in a lake. Two photographs of the lake surface were taken at $t = 0$ and $t = 6.0$ s and are identical to the diagram shown. During these 6.0 s, the buoy made 4 full oscillations.



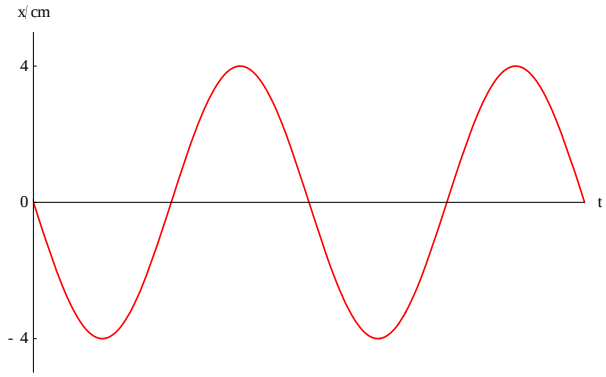
What is the speed of the water waves on the lake?

A 2.0 m s^{-1} **B** 4.5 m s^{-1} **C** 8.0 m s^{-1} **D** 9.0 m s^{-1}

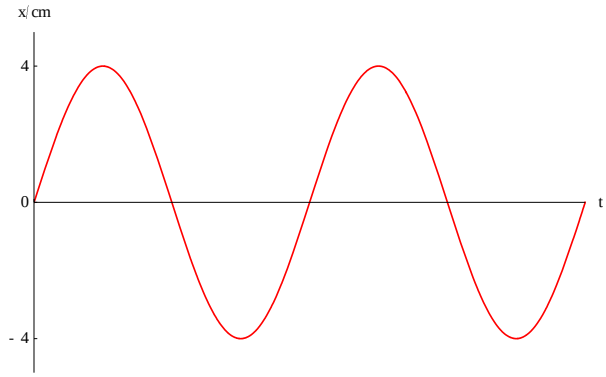
3. A transverse wave is travelling to the right. The graph shows the variation with distance *d* of the displacement of points in the medium at $t = 0$. A point in the medium has been marked.



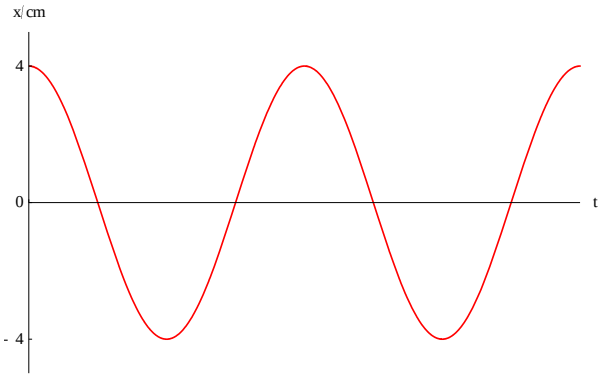
Which graph shows the variation with time of the displacement of the marked point?



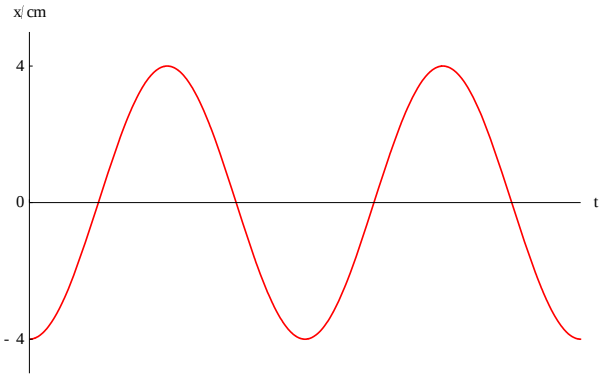
A



B

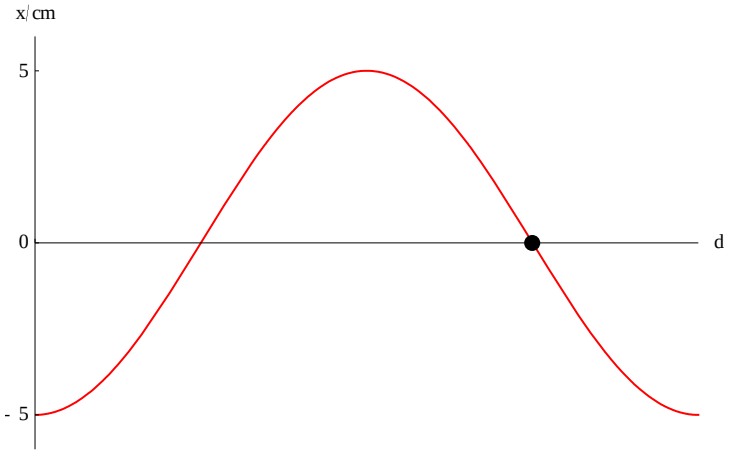


C

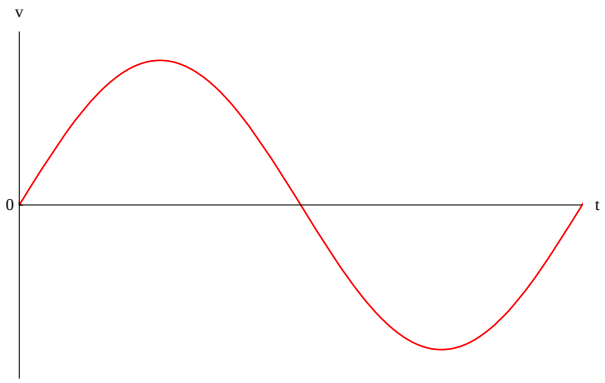


D

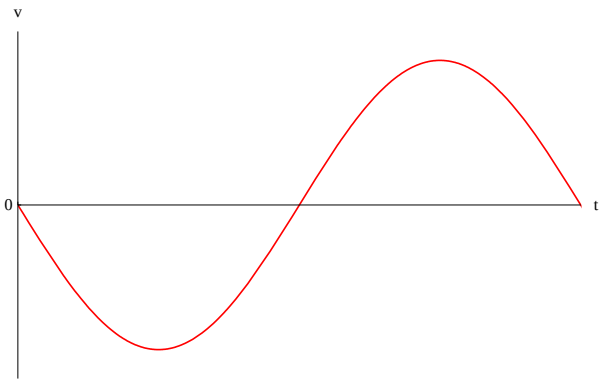
4. A transverse wave is travelling to the right. The graph shows the variation with distance *d* of the displacement of points in the medium at *t* = 0. A point in the medium has been marked.



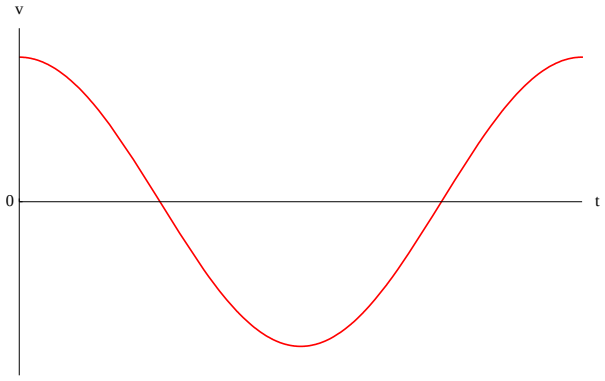
Which graph shows the variation with time of the velocity of the marked particle?



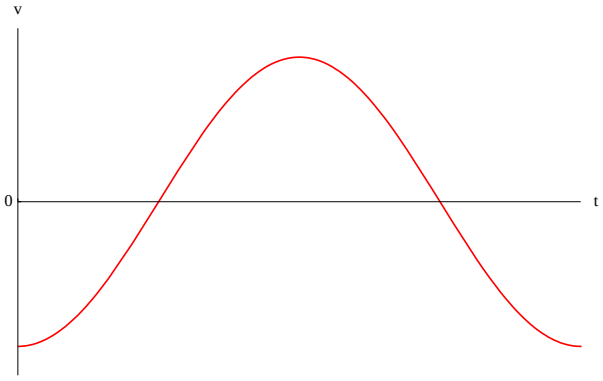
A



B

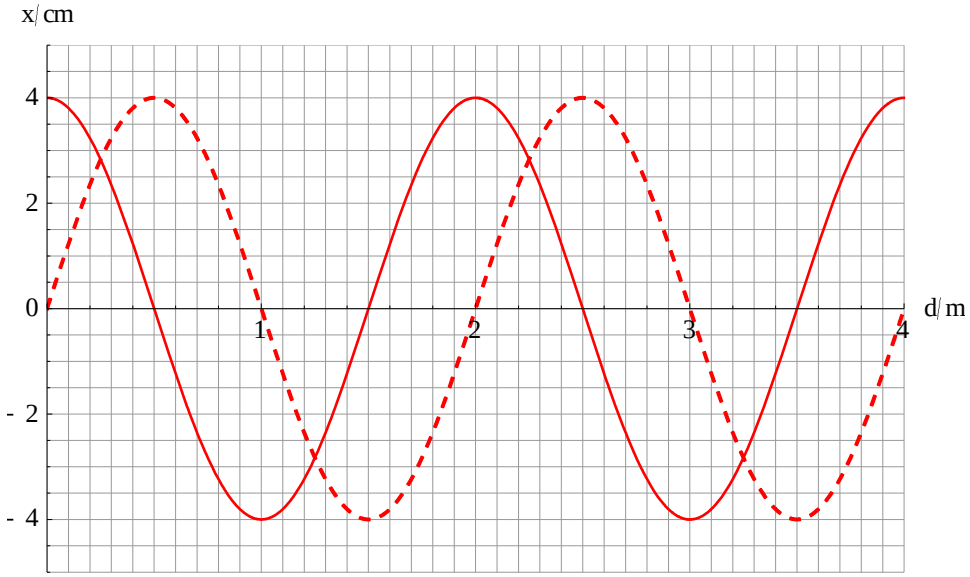


C



D

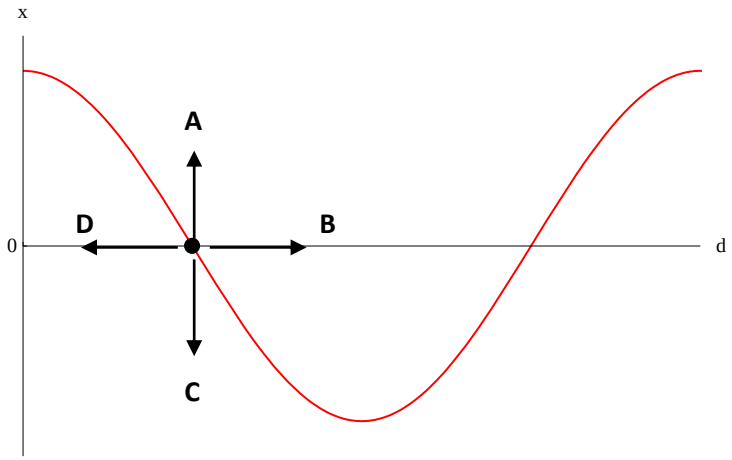
5. The graph shows a wave travelling to the right at $t = 0$. The dashed line shows the same wave at $t = 20$ ms. (The period of the wave is longer than 20 ms.)



What is the speed of the wave?

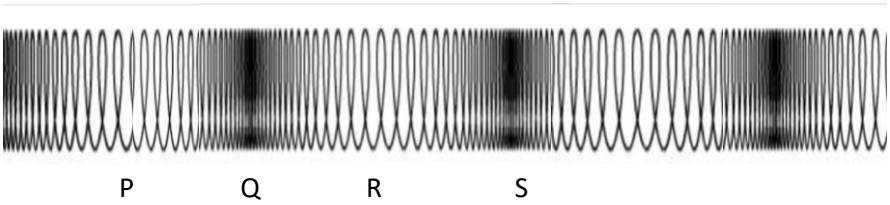
A 12.5 m s^{-1} **B** 25.0 m s^{-1} **C** 50.0 m s^{-1} **D** 75.0 m s^{-1}

6. The graph shows, at a particular instant of time, the variation of the displacement with distance for a wave that is travelling through a lake from left to right. The marked point is a piece of cork that floats on the lake.



What is the direction of velocity of the cork at this instant?

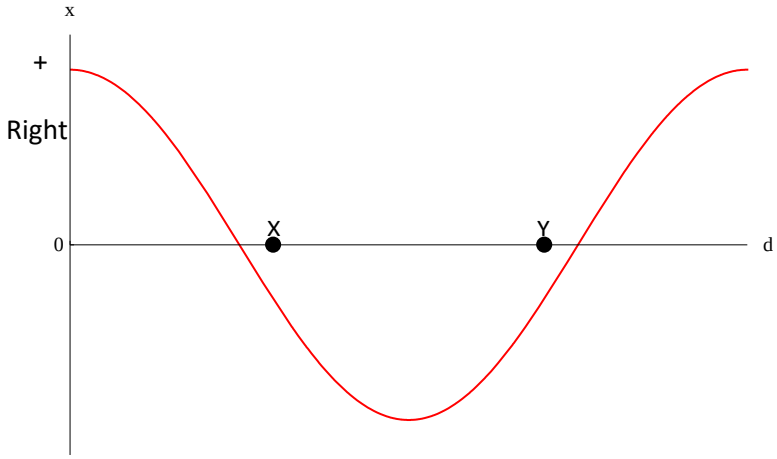
7. A longitudinal wave travels through a spring.



Which distance gives the wavelength of the wave?

A PQ **B** QR **C** QS **D** PS

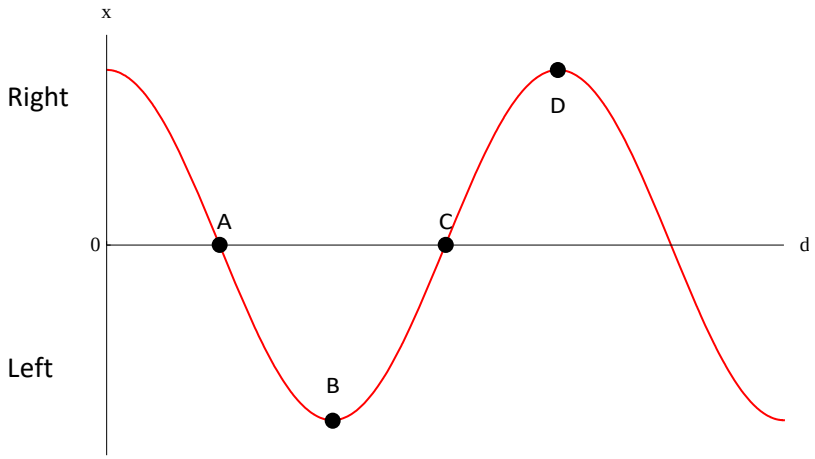
8. The graph shows, at a particular instant of time, the variation with distance of the displacement of a longitudinal travelling wave. The wave is travelling to the right. The dots show the equilibrium positions of two particles, X and Y, in the medium.



What is the direction of the velocity of X and of Y at this instant?

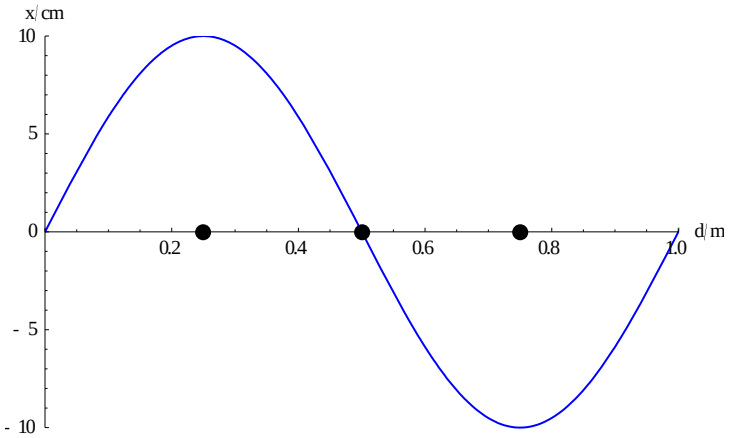
	X	Y
A	To the left	To the right
B	To the left	To the left
C	To the right	To the right
D	To the right	To the left

9. The graph represents a longitudinal wave travelling to the right.

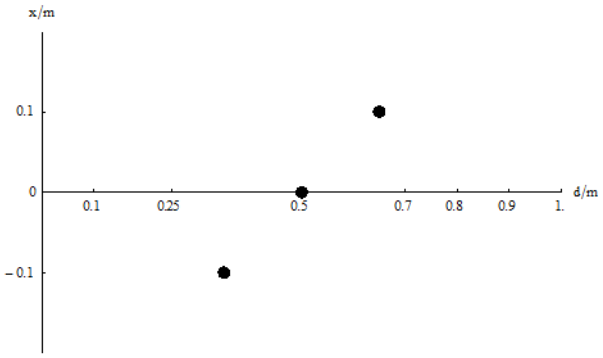


Which point corresponds to a rarefaction?

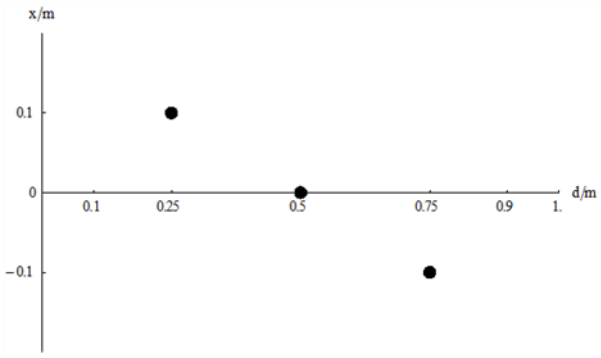
10. The graph shows the variation, at t = 0, of the displacement with distance of a longitudinal wave travelling through a medium. The **equilibrium** positions of three particles in the medium have been marked. Positive displacement means displacement to the right.



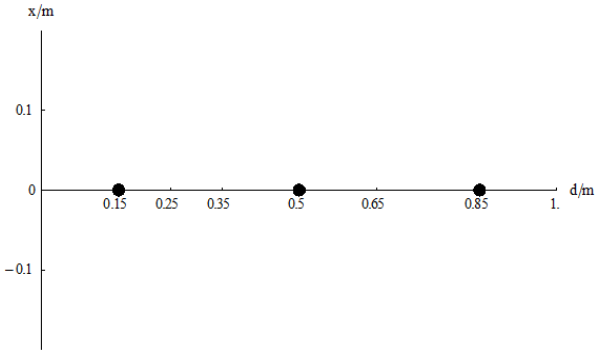
Which diagram shows the position of the three particles at t = 0?



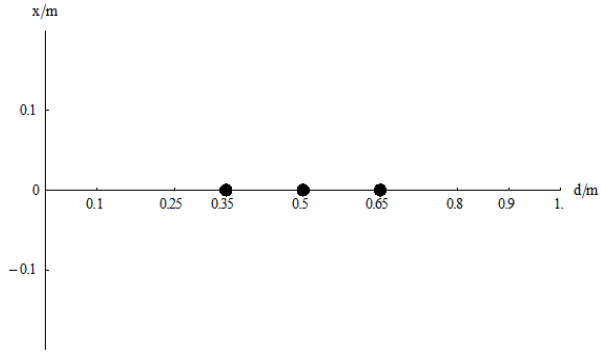
A



B



C



D

Quiz C13 Answers	
1	B
2	A
3	A
4	C
5	B
6	A
7	C
8	D
9	C
10	D