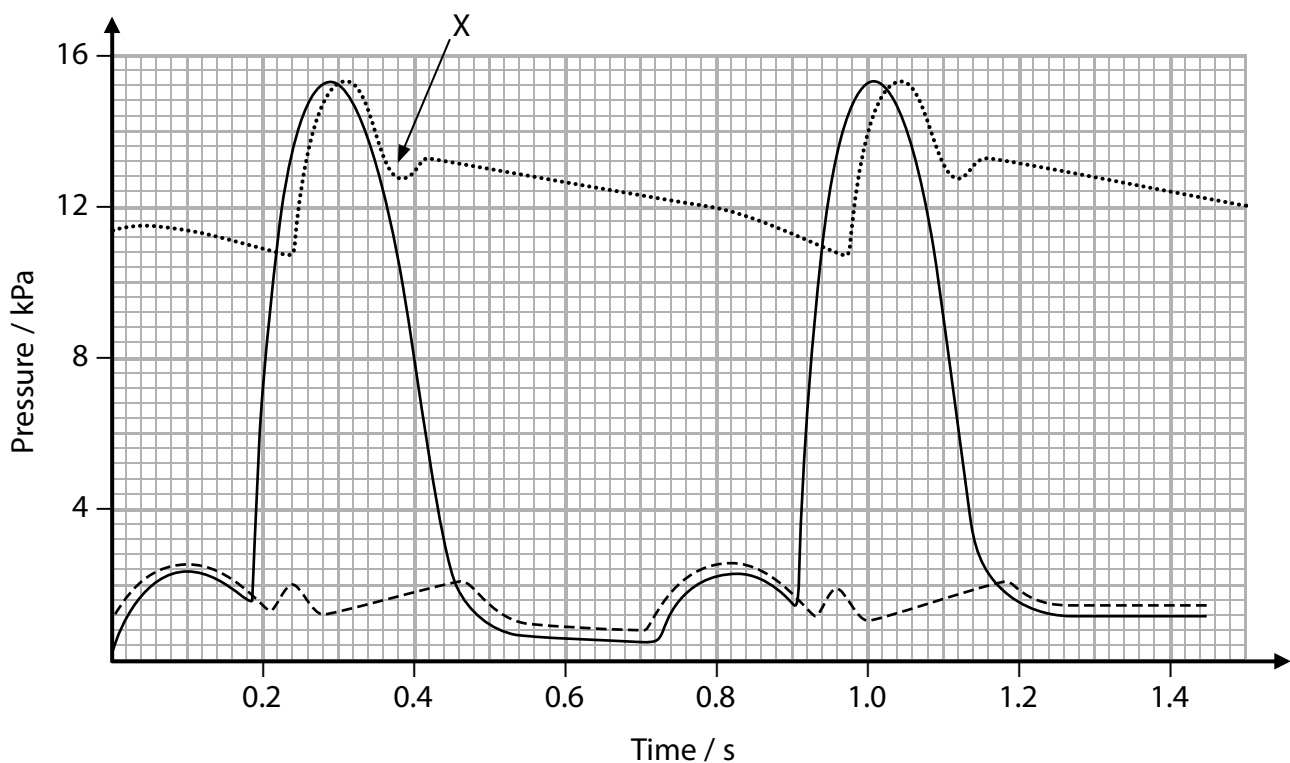


- 4 During the cardiac cycle, there are pressure changes in the left atrium, left ventricle and aorta.

The graph shows these pressure changes in the left atrium, left ventricle and aorta of a person.



Key	
.....	aorta
————	left ventricle
-----	left atrium

- (a) (i) Which time period corresponds with ventricular systole?

(1)

- A 0.52 to 0.72
- B 0.72 to 0.92
- C 0.92 to 1.20
- D 0.24 to 0.98

- (ii) Which of the following is occurring in the heart at 1.0 second on the graph?

(1)

- A semilunar valve is closed and atrioventricular valve is closed
- B semilunar valve is closed and atrioventricular valve is open
- C semilunar valve is open and atrioventricular valve is closed
- D semilunar valve is open and atrioventricular valve is open

(iii) Use the information on the graph to calculate the heart rate of this person. (2)

Answer beats per minute

(b) When the heart valves close, they make a sound. This sound can be detected and recorded.

(i) State a time from the graph when the sound of an atrioventricular valve closing would be detected. (1)

.....
.....

(ii) Explain why the atrioventricular valves need to close. (2)

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(Total for Question 4 = 7 marks)