

## Solutions

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Each answer shows the steps, then the **result**.

### 2.1

- the left ventricle pumps blood all the way round the body (the systemic circulation), which needs a higher pressure, so it needs more muscle than the right, which only pumps to the lungs

### 2.2

- the valve closes

### 3.1 B

- The AVN delays the wave so the atria finish emptying before the ventricles contract

### 3.2 B

- The semilunar valve opens when ventricular pressure rises above aortic pressure

### 3.3

(a)

- cardiac output =  $70 \times 75 = 5250 \text{ cm}^3 \text{ min}^{-1}$

(b)

- $90 \times 150 = 13\,500 \text{ cm}^3 \text{ min}^{-1}$

### 3.4

- the SAN fires and the wave spreads across the atria, making them contract; the AVN picks it up and delays it; the wave passes down the Purkyne tissue and up the ventricle walls, so the ventricles contract from the base upwards