Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

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

2.1

rib 2 joins the sternum here

it is level with the T4/T5 disc

the trachea divides here, and the aortic arch starts and ends

2.2

1 **brachiocephalic trunk**

2 **left common carotid**, 3 **left subclavian**

2.3

the **5th intercostal space**, in the **mid-axillary line**

just above the rib below, because the vein, artery and nerve run under the lower edge of each rib

2.4

A, in front: **phrenic** nerve

B, behind: **vagus** nerve

3.1

(a) the pericardium is a stiff bag that cannot stretch quickly, so the blood squeezes the heart and it cannot fill between beats

(b) blood cannot enter the squeezed right side of the heart, so it backs up in the large veins of the neck

(c) just below the xiphoid process, aimed towards the left shoulder

(d) the heart muscle or a coronary artery, or the liver

3.2

(a) the **left recurrent laryngeal** nerve

(b) the left nerve loops under the aortic arch in the chest; the right one loops under the right subclavian artery in the neck, far from the mass

(c) the left **phrenic** nerve, roots C3–C5

3.3

(a) **2** ribs

(b) the pleural space below the lung (the costodiaphragmatic recess), because in quiet breathing the lung does not fill the lowest part of the pleura

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(c) the pleura and lung top rise about 3 cm above the inner part of the clavicle, so a wound there can let air into the pleural space

(d) the heart is enlarged

(e) rib 2 joins the sternum at the sternal angle; the space below rib 2 is the 2nd space, so count down three more spaces