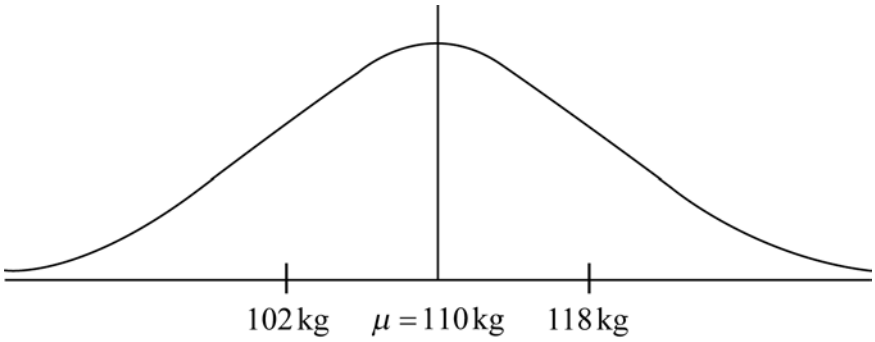
**4.2** (a)




***(A2)***

**Note:** Award ***(A1)*** for normal curve with mean of 110 (kg) indicated and ***(A1)*** for labelling 118 (kg) (one standard deviation above the mean) and 102 (kg) (one standard deviation below the mean).

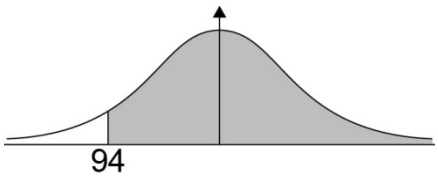
***[2 marks]***

(b) (i) 2 ***(A1)***

**Note:** Do not accept $-2$.

(ii) 0.977 (0.977249…, 97.7249...%) ***(G2)***

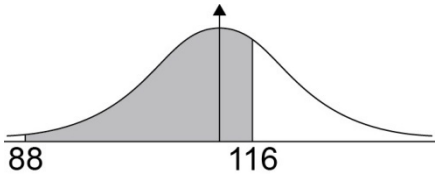
**Notes:** Do not accept 0.975.
Award ***(G2)*** for 0.98 unless this comes from 0.975.
If ***(G0)***, award ***(M1)*** for $\mathrm{P}(\text{weight} > 94)$.
If ***(G0)***, award ***(M1)*** for correct region indicated on a labelled diagram.




***[3 marks]***

(c) (i) 0.770 (0.770392…, 77.0392...%) ***(G2)***

**Notes:** If ***(G0)***, award ***(M1)*** for $\mathrm{P}(88 < \text{weight} < 116)$.
If ***(G0)***, award ***(M1)*** for correct region indicated on a labelled diagram.




*continued…*

*Question 4.2 continued*

(ii) $0.770392\ldots\times160$ ***(M1)***

**Note:** Award ***(M1)*** for multiplying their probability from part (c)(i) by $160$.

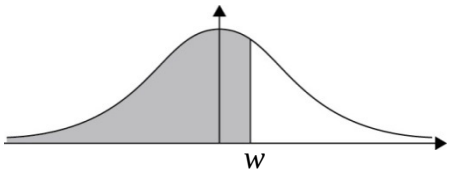
$=123\ (123.262\ldots)$ ***(A1)*****(ft)*****(G2)***

**Notes:** Accept either $123$ or $124$ (whole number of sheep).
Accept $123.2$ as the unrounded answer if $0.770$ is used.
Follow through from part (c)(i).

***[4 marks]***

(d) $w=115\ (115.395\ldots)$ ***(G2)***

**Notes:** If ***(G0)***, award ***(M1)*** for $\mathrm{P}(\text{weight} < w)=0.75$.
If ***(G0)***, award ***(M1)*** for a vertical line drawn to the right of the mean with the area to the left of this line shaded. The $w$ may not be seen.




***[2 marks]***

(e) $a=106\ (105.804\ldots)$ ***(G1)***

$b=114\ (114.195\ldots)$ ***(G1)***

**Note:** If their answers are not identified by the letters $a$ and $b$ **and** the order is incorrect ($114$ followed by $106$) then award, at most, ***(G0)(G1).***

***[2 marks]***

***Total [13 marks]***