Measures of location and spread 2B

1 a $351 - 400$

b $$\frac{(200\times4)+(263\times8)+(325.5\times18)+(375.5\times28)+(450.5\times7)}{65}$$
$$=\frac{800+2104+5859+10514+3153.5}{65}$$
$$=\frac{22430.5}{65}$$
$$=345.08$$

c There are 65 observations so the median is the 33rd. The 33rd observation will lie in the class 351–400.

2 a $$\frac{(67\times1)+(72\times4)+(77\times6)+(82\times6)+(87\times8)+(92\times4)+(97\times1)}{30}=\frac{2470}{30}=82.3 \text{ decibels}$$

b The answer is an estimate because you don't know the exact data values.

3 a Modal class = $10 \leq t < 12$

b Estimate of the mean $= \frac{(7\times3)+(9\times7)+(11\times9)+(13\times7)+(15\times3)+(17\times2)}{31}$
$$=\frac{353}{31}=11.4 \text{ °C (1 d.p.)}$$

4 Store A $$\frac{(20.5\times5)+(30.5\times16)+(40.5\times14)+(50.5\times22)+(60.5\times26)+(70.5\times14)}{97}$$
$$=\frac{4828.5}{97}=50 \text{ years}$$

Store B $$\frac{(20.5\times4)+(30.5\times12)+(40.5\times10)+(50.5\times28)+(60.5\times25)+(70.5\times13)}{92}$$
$$=\frac{4696}{92}=51 \text{ years}$$

Store B employs older workers but not by a great margin.