# Descriptive Stats Worksheet

0 min

0 marks

**1.**  (a)  (i)  10     (A1)

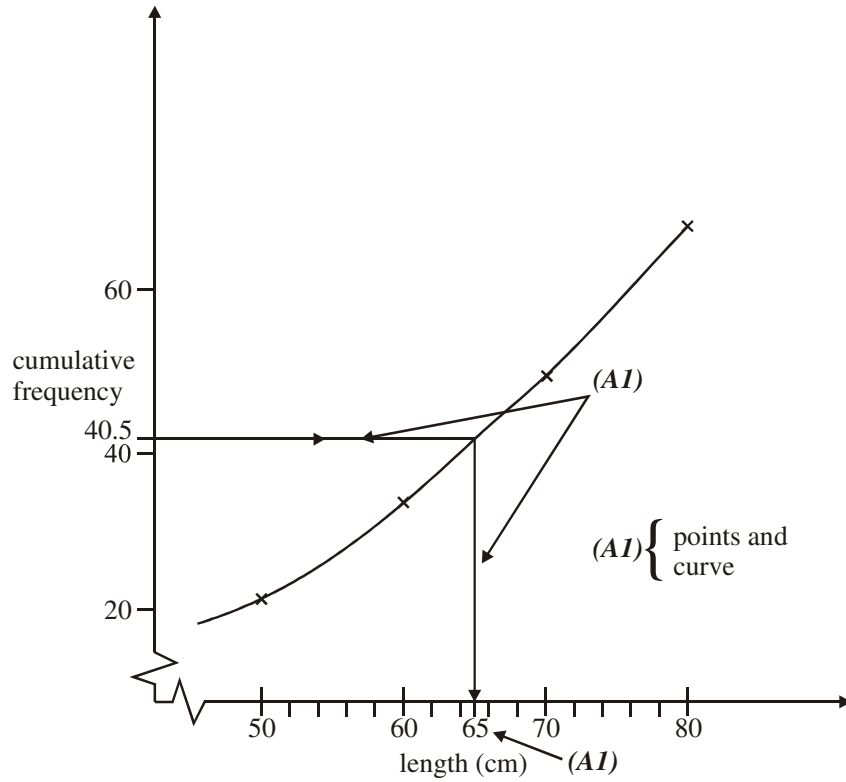      (ii)  14 + 10 = 24     (A1)    2

(b)

| $x_i$ | $f_i$ |
|-------|-------|
| 15 | 1 |
| 25 | 5 |
| 35 | 7 |
| 45 | 9 |
| 55 | 10 |
| 65 | 16 |
| 75 | 14 |
| 85 | 10 |
| 95 | 8 |

(A1)    (A1)

          80    (AG)

*Note: Award (A0) for using the mid-interval values of 14.5, 24.5 etc.*

    (i)  $\mu$ = 63     (A1)

    (ii)  $\sigma$ = 20.5 (3 sf)     (A1)    4

(c)  Assymetric diagram/distribution     (A1)    1

(d)

cumulative
frequency

60 —

40.5
40

20

*(A1)*

*(A1)* { points and
curve

50    60    65    70    80

length (cm)  *(A1)*    3

**OR** Median = 65    (A3)    3

> *Note: This answer assumes appropriate use of a calculator with correct arguments.*

**OR** Linear interpolation on the table:    (M1)

$$\left(\frac{48-40.5}{48-32}\right)\times 60 + \left(\frac{40.5-32}{48-32}\right)\times 70 = 65 \text{ (2sf)}$$    (A1)(A1)    3
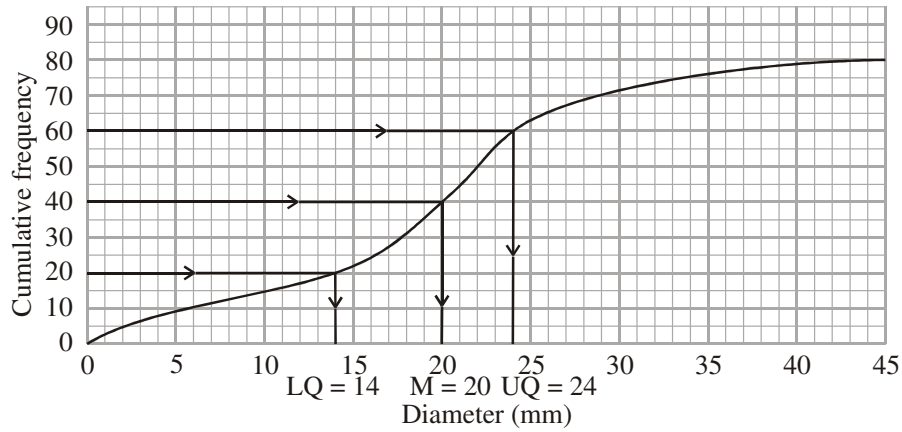
**[10]**

**2.**  Mean = $\dfrac{(72\times1.79)+(28\times1.62)}{100}$    (M1)(M1)(M1)

= 1.7424 (= 1.74 to 3 sf)    (A1)   (C4)

**[4]**

**3.** Jan–Sept   $\sum = 630 \times 9 = 5670$                                  (M1)(A1)

Oct–Dec   $\sum = 810 \times 3 = 2430$                                  (M1)(A1)

$$\bar{x} = \frac{5670 + 2430}{12}$$                                      (M1)

mean   $= 675$                                                            (A1)  (C6)

**[6]**

**4.**



(a)   (i)   Correct lines drawn on graph,                               (A1)(C1)

median = 20                                                              (A1)(C1)

(ii)   Correct lines drawn on graph,                                    (A1)(C1)

UQ = $Q_3$ = 24                                                          (A1)(C1)

(b)   IQR = $Q_3 - Q_1$ (or UQ – LQ)                                    (M1)

= 10 (accept 14 to 24)                                                   (A1)  (C2)

> ***Note:***   *Accept 14 to 24, 24 to 14, 14 – 24*
> *or 24 –14.*

**[6]**

**5.** $d = 11; \quad c = 11$                                                             (A1)(A1)(C1)(C1)

$d - a = 8 \quad$ (or $11 - a = 8$)                                              (A1)
$a = 3$                                                                (A1)  (C2)

$$\frac{3 + b + 11 + 11}{4} = 8 \quad \left( \text{or } \frac{\text{sum}}{4} = 8 \right)$$      (A1)

$b = 7$                                                           (A1)  (C2)

**[6]**

**6.** (a)   3                                                                             A1   N1

(b)   6                                                                             A2   N2

(c)   Recognizing the link between 6 and the upper quartile       (M1)
     *eg* 25% scored greater than 6,
     $0.25 \times 32$                                             (A1)
     8                                                          A1   N3

**[6]**

**7.** (a)   evidence of using $\sum f_i = 100$                         (M1)

     $k = 4$                                                         A1   N2

(b)  (i)   evidence of median position                   (M1)
          *eg* $50^{\text{th}}$ item, $26 + 10 + 20 = 56$
          median $= 3$                                    A1   N2

    (ii)  $Q_1 =$ and $Q_3 = 5$                             (A1)(A1)
        interquartile range $= 4$ (accept 1 to 5 or $5 - 1$, etc.)     A1   N3

**[7]**

**8.** (a)   line(s) on graph                                        (M1)
     median is 183                                      (A1)  (C2)

(b)   Lower quartile $Q_1 = 175$                              (A1)

     Upper quartile $Q_3 = 189$                              (A1)

     IQR is 14
     (Accept $189 - 175$, 175 to 189, 189 to 175 and $175 - 189$)     (M1)(A1)  (C4)

**[6]**

**9.** (a)   D    B    C                                                      A1A1A1   N3

(b)     B     A     C                                                      A1A1A1    N3

**[6]**


**10.**   (a)   (i)     $m = 165$                                            A1     N1

(ii)    Lower quartile ($1^{st}$ quarter) = 160                        (A1)
Upper quartile ($3^{rd}$ quarter) = 170                         (A1)
IQR = 10                                                       A1     N3

(b)    Recognize the need to use the $40^{th}$ percentile, or $48^{th}$ student     (M1)
*eg* a horizontal line through (0, 48)
$a = 163$                                                      A1     N2

**[6]**