**3.** The table below shows the number of hours worked in a given week, to the nearest hour, by a group of 64 freelance photographers.

| Hours ($h$) | Frequency (f) | Hours midpoints ($x$) |
|---|---|---|
| 0 – 10 | 5 | 5.25 |
| 11 – 20 | 16 | 15.5 |
| 21 – 25 | 14 | 23 |
| 26 – 30 | 17 | 28 |
| 31 – 40 | 10 | 35.5 |
| 41 – 49 | 2 | 45 |

[You may use $\sum fx = 1517.25$ and $\sum fx^2 = 41\,368.3125$ ]

A histogram (not shown) has been drawn to represent these data.

The bar representing the class 11 – 20 hours has width 3.2 cm and height 7.5 cm.

(a) Calculate the width and the height of the bar representing the class 21 – 25 hours.

**(3)**

(b) Use linear interpolation to estimate the median number of hours worked.

**(2)**

(c) (i) Show that an estimate of the mean number of hours worked is 23.71 correct to 2 decimal places.

(ii) Estimate the standard deviation of the number of hours worked.

**(3)**

(d) Explain why the answers to part (c) are estimates.

**(1)**

(e) Describe, giving a reason, the skewness of these data.

**(1)**

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**Question 3 continued**

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**Question 3 continued**

**(Total for Question 3 is 10 marks)**