FP Unit 1 Test Markscheme
2018.10.16

1. a. batteries [A1]

b. all batteries produced [A1]

* Any suggestion that the population is 10 batteries or batteries chosen receives [A0].

c. The 10 batteries chosen each day [A1]

* At least 2 of these underlined components must be explicit or implicit.

d. 10. [A1]

e. Temperature. [A1]

f. Quantitative: It is a number (You can do math with it.)

[A1] for answer, [A1] for explanation.

(ft) from part e.

g. continuous: It can take any value in its range.

[A1] for answer, [A1] for explanation.

(ft) from part e.

If they answer discrete and specifically explain the fact that measurements are discrete, award A1 A1.

h. e.g. 15°. [A1]

Credit for anything that makes sense: (ft) from e, f, and g.

2. a. $1+2+3+4+10 = 20$ | M1

$20/5 = 4$

$\mu = 4$ | A1 or G2

M1 for sum and division

G2 if GDC used.

Also accept $\bar{x} = 4$.

b.

x	$x-\mu$	$(x-\mu)^2$
1	-3	9
2	-2	4
3	-1	1
4	0	0
10	6	36

M1

A1 $\Sigma = 50$

$\sigma^2 = \frac{50}{5} = 10$ M1

$\sigma = \sqrt{10}$ A1

or $\sigma \approx 3.16$ G4

A1 for errors seen.

M1 for squaring them

M1 for finding the mean (of whatever they had)

A1 for ~~that~~ $\sqrt{10}$.

(FT) from value of μ in a.

or: G4 for GDC used to get 3.16.

c. $\mu = 24$, $\sigma = \sqrt{10}$. A1 A1

~~A1 for correct or incorrect shift.~~

~~M0A0 for doing it from scratch~~

~~(once means they must use previous work)~~

(FT) from a. and b.

A1 for each answer.

A0 A1 if they did it from scratch and no evidence of using previous answers.

2. d. $\mu = 12$, $\sigma = 3\sqrt{10}$ A1 A1

marks as in 2. c.

3. a. 88 A1

b. $\frac{(86+x)}{2}$ = median M1 A1

M1 Midpoint formula seen

A1 86 seen.

c. $\mu = (74+86+86+x+90+98)/6$

$\mu = (434+x)/6$ A1 Find μ

$(434+x)/6 = (86+x)/2$ M1 Setting them equal.

$434+x = 3\cdot 86 + 3x$

$434 - 258 = 2x$

$176 = 2x$

$88 = x$ A1 (ft) from b.

4. a. Midpoints: 30, 40, 50, 60, 70, 80 A1

M1 Product sum found.

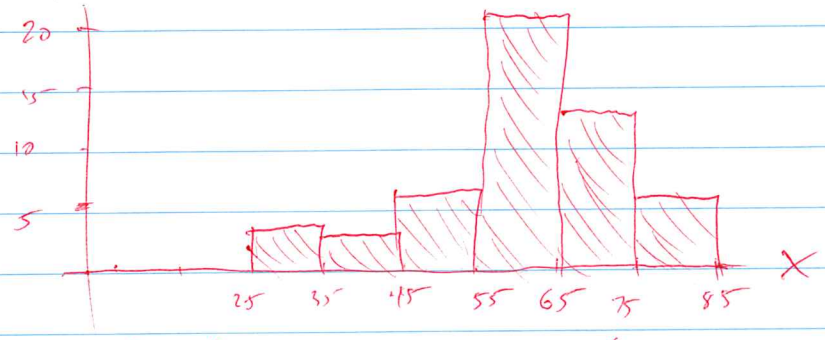
A1 $\mu \approx \frac{3230}{53} \approx 60.9$

b. the 27th individual, in the 55-65 group M1 (for any evidence of this)

≈ 60 A1

4c. We don't know the exact values in the intervals R1 (for anything that makes sense.)

d. frequencies



A1 for x-axis labels
A1 for actually being a histogram
A1 for roughly correct relative heights.

e. Slightly skewed left. A1

(ft) from d. Accept alternate terminology.

5. a. eg: Times exercising per week. A1

Accept anything discrete and sensible.

b. Favorite sport. A1

(as above)

c.

A1 R1 | DC accept continuous variables, variables with no unique values, or variables associated with huge sample sizes, if the explanation makes it clear why.