

## Topic 9 Statistics 1 (Pre-TT) [36] MARKSCHEME

1.

$\Sigma$  (goals  $\times$  matches) M1  
 *$\Sigma$  at least 3 multiplications*

Their  $84 \div 15$  DM1  
 *$\div$  by 14, 16 with working*

5.6 A1

[3]

2.

(a) 2230 [B1]  
 2250 and 2270 [A1]

(b)  $\frac{2250+2280+x}{3} = 2300$  [M1]  
 $x = 2370$  [A1]

(c) The number of laptops sold is increasing [R1]

3.

'Yes' with correct working	P1 begins process of working with mean eg $35 \times 10$ (=350) or $33 \times 11$ (=363) or $10 \times (35 - 33)$ (=20) or $11 \times (35 - 33)$ (=22) P1 (dep) finding the difference eg "363" – "350", or $33 - "20"$ or $35 - "22"$ C1 'Yes' with 13 from correct working
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4.

(a) Negative B1

(b) 5.6 B1  
*Accept 5.5*

(c) Need to extend line beyond plotted points  
 May curve after year 7 B1  
*Any valid point regarding extrapolation  
 (Note: the line doesn't reach)  
 (It is an unknown value n/e)*

[3]

5.

(a) Attempt at  $\Sigma fx$  M1  
 $(5 \times 16) + (15 \times 10) + (25 \times 11)$   
 $+ (35 \times 8) + (45 \times 5)$   
*'f'  $\times$  their midpoint within the range  
 At least three products*

their  $\frac{1010}{50}$  M1 dep  
*Must be from at least 3 correct midpoints*

20.2 A1  
*Accept 20 from correct method seen*

[3]

- (b) Indication of 25th or 25.5th value M1  
 $10 < t \leq 20$  A1  
*Accept 10 – 20*

[5]

6.

- (a)  $7+3+2+1$  M1  
 $= 13$  A1

- (b)  $7+1+2+0+1+0$  M1  
*condone zeros not written*  
 $= 11$  A1

- (c)  $\frac{10}{30}$  oe B1 B1

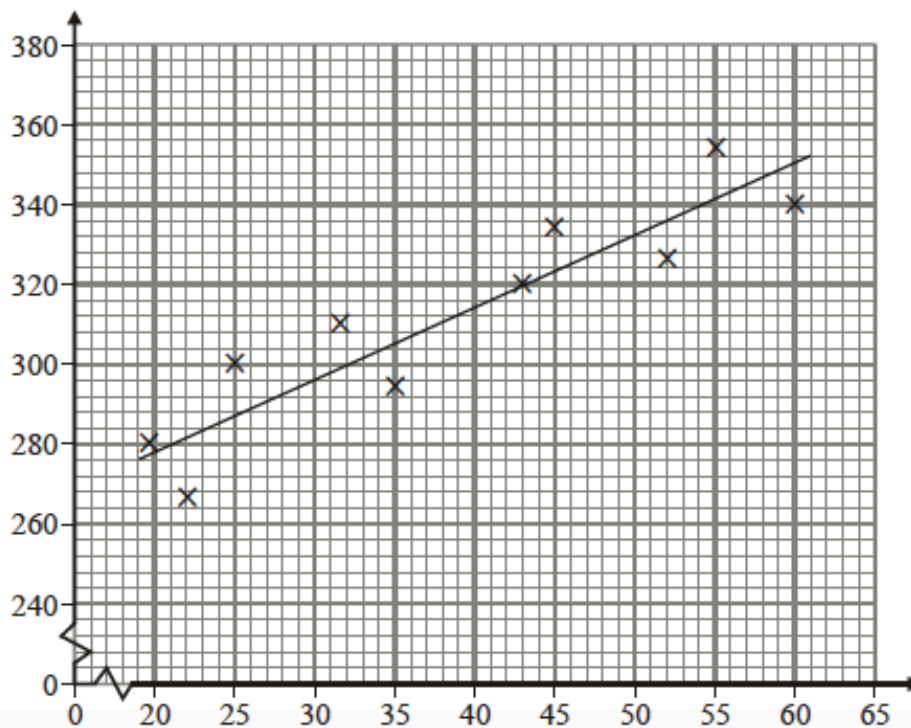
[5]

7.

- (a) see below B2  
*-1 each error or omission*

- (b) see below B1  
*must pass through gate of (20, 272)  
and (20, 284) and gate of (60, 344)  
and (60, 356)*

- (c) older runners tend to take longer to finish B1  
oe



[4]

8.

$\frac{29 + 1}{2}$ or 15th value identified	M1
6	A1

9.

$16 \times 2$ or 32 or $7 \times x$ or $7x$ or $20 \times 12$ or 240 or $10 \times 17$ or 170 or $16 + x + 20 + 10$ or $46 + x$	M1	oe
$16 \times 2 + 7 \times x + 20 \times 12 + 10 \times 17$ or $16 \times 2 + 7x + 240 + 170$ or $442 + 7x$	M1	oe Must be the sum of 4 products Award if correct expression seen, even if in an incorrect equation
their $(32 + 7x + 240 + 170) =$ $8.5 \times$ their $(16 + x + 20 + 10)$ or their $(442 + 7x) =$ $8.5 \times$ their $(46 + x)$	M1	oe equation ft their sum of at least 3 products, one of which must be $7 \times x$ ft sum of at least 3 frequencies, one of which must be $x$
their $442 -$ their $(8.5 \times 46) =$ $8.5x - 7x$	M1dep	oe equation dep on 3 <sup>rd</sup> M1 Expands and rearranges their equation Allow one sign or expansion error
34	A1	Answer 34 with no incorrect working gains 5 marks