

Revision F3 (Topics 1-9) [47] MARKSCHEME

- 1.
- (a) 88 B1
- (b) The higher the mark on paper 1, the higher the mark on paper 2 B1
oe
accept positive correlation
- (c) Straight line passing between (20, 14) to (90, 82) and (20, 25) to (90, 93) B1
- (d) Correct mark (± 1) from their line B1 ft
- [4]**
- 2.
- Number of chocolates is $\frac{3}{5} \times 60$ M1
- = 36 A1
SCI 24 or 24 and 36
- [2]**
- 3.
- (a) 2×54 or 3×36 M1
 $2 \times 2 \times 3 \times 3 \times 3$ A1
 $2^2 \times 3^3$ A1
- (b) $2^3 \times 3^2$ B1
 HCF = 36 or $2^2 \times 3^2$ B1
SCI for 6, 12 or 18
- [5]**
- 4.
- (a) Midpoints B1 **[1]**
Must have all of them: -3, 5, 7, 9, 11, 13
- $\Sigma mf (=228)$ M1
Using their midpoints (lcb = 198, ucb = 258)
- (Their Σmf) $\div 30$ DM1
Must divide by 30
- = 7.6 minutes A1
- (b) $6 < t \leq 8$ *Any indication e.g 6-8* B1
- [5]**
- 5.
- (a) $\frac{108+92+154}{3}$ [M1]
 118 [A1]
- (b) The number of games sold is increasing [R1]

- 6.
- (a) $73 + 2x + 3x + 102 = 360$ B2
B1 for each side
- (b) $5x = 360 - 102 - 73$
or $5x = 185$ M1
Note: working may be seen in (a)
- $(x =) 37$
or their $185 \div 5$ M1 dep
 $(3x =) 111$ A1
- [5]
- 7.
- (a) 0.51(2) B1
- (b) Correct plots B1 ft
 $\pm \frac{1}{2}$ square, ft their (a)
- Smooth curve B1 ft
- (c) 1.2 B1 ft
 $\pm \frac{1}{2}$ square
- [4]
- 8.
- $x^2 + 8x + 16$ B2
-1 eeo but must have 3 terms (in x^2 , x and constant). No
negative totals.
Further work penalise by 1 mark.
- [2]
- 9.
- (a) No, supported by working M1,DM1,A1,B1
M1 for sight of sine
DM1 for $\sin x = \frac{0.29}{4} (= 0.0725)$
A1 for $x = 4.157$ or $\sin 4 < 0.0725$
B1 conclusion
- (b) (i) 174,170 M1,DM1,A1,B1
M1 for sight of tan.
DM1 for $h = 50 \times \tan 74$
A1 for 174.37
B1 for rounding. NB independent mark
f.t. their answer if > 3 s.f
Accept 175 if supporting working seen
- (ii) 74° B1
- [9]

10.

$x \times x \times 2x$ or $2x^3$	M1	oe
$\frac{x}{2}$ used as radius	M1	eg $\pi \times \frac{x}{2} \times \frac{x}{2}$ seen
$\frac{1}{2} \times \pi \times \frac{x}{2} \times \frac{x}{2} \times x$ or $\frac{1}{8} \pi x^3$	M1	oe
$2x^3 + \frac{1}{8} \pi x^3$	A1	Accept $a = 2$ and $b = 8$ Condone if subsequently factorised to $(2 + \frac{1}{8} \pi)x^3$

11.

Their min 1200 – their max
280 (1150-285 = 865) M1

Their min 1200 must be 1100 < min < 1200

Their max 280 must be 280 < max < 290

Either 1150 or 285 correct A1

Their 865 ÷ their max 65 (865 ÷ 65.5) M1

Their max 65 must be 65 < max < 66

13 A1

13 no working SCI

[4]