

Revision F3 (All topics) D [41] MARKSCHEME

1.

(a) $s^3 + 6s$ B2

B1 for s^3 or $(+)6s$

(b) (i) $6f^4u^3$ $-1\ e\ e\ e\ e$ B2

(ii) $8c^{12}$ B2

B1 for 8 or c^{12}

[6]

2.

(a) $17.5 \div 100 \times 84$ M1
or clear attempt to work out $10\% + 5\% + 2.5\%$

14.7 (kg) A1

(b) 14.7 (km) B1

[3]

3.

	R	Y	G		M1
M	3	2	2		
F	2	1	3		

Table 3×2 or 2×3

If gender ignored and total number of students used M0

Fully correct A2

Accept tally marks;

4 or 5 correct entries A1; SC2 for

	M			F		
	R	Y	G	R	Y	G
	3	2	2	2	1	3

or

	M			F		
R	3			R	2	
Y	2			Y	1	
G	2			G	3	

Or

	R	Y	G
M	3	2	2

	R	Y	G
F	2	1	3

4 or 5 correct entries SC1

[3]

4.			
	$\approx \frac{400 \times 3}{0.6}$	M1	
	<i>At least two suitable [accept 390] Do not accept 1 or 0.5 for 0.6</i>		
	$= \frac{1200}{0.6}$	A1	
	<i>Needs $\frac{1200}{0.6}$ or equivalent [or $\frac{1170}{0.6}$]</i>		
	= 2000	A1	
	[Note: No working 0 marks]		
	<i>[or 1950] [Check not from $\frac{400 \times 5}{1}$]</i>		
			[3]
5.			
(a)	7	B1	
	± 0.1		
(b)	Ruled line passing through (1.4 to 2.6, 10) and (6.6 to 8, 30)	B1	
	<i>Line must cut vertical at 7</i>		
(c)	The taller a tree is the broader its trunk	B1	
	<i>Positive correlation</i>		
(d)	(i) 8 metres	B1 ft	
	<i>ft their increasing straight line (must be long enough) Extrapolation</i>		
	(ii) (Slightly unreliable because this is) a bigger trunk than any of the plots	B1	
	<i>Trend starting to curve away from line Other are all smaller</i>		
			[5]
6.			
(a)	A(-4, 0)	B1	
	<i>or $2y = 4$ and $-x = 4$ seen</i>		
	B(0,2)	B1	
	<i>SCI reversed answers</i>		
(b)	(their difference in y's) \div (\pm their difference in x's)	M1	
	<i>or attempt to rearrange $2y - x = 4$ to $y = 0.5x + 2$ and $2y = 4 + x$ or $y = 0.5x + 2$ seen</i>		
	<i>ft condone A(0, ?) and/or B(?, 0) from (a)</i>		
	0.5 or $\frac{1}{2}$	A1ft	
	<i>ft for $0 < \text{gradient} < 1$ only</i>		
			[4]

7.

- (a) $30 - x$ B1
- (b) $4x - 1(30 - x) + 25$ B2ft
ft from their (30 - x), -1 each 'new' error
- (c) $4x - (30 - x) + 25 = 80$ M1
for equating their expression to 80
- $5x = 85$ M1
*for simplifying their equation allow one error
if coefficient of x in (b) = 1 then M0*
- $(x =) 17$ A1
T and I giving (x =) 17 scores 3 marks in (c)

[6]

8.

- (a) $(\text{their } 8)^2 + (\text{their } 15)^2$ M1
 $\sqrt{\text{their } 289}$ M1
17 A1
- (b) Attempt at $\frac{y \text{ interval}}{x \text{ interval}}$ B1
- gradient $\frac{15}{8}$ B1
ft their values from (a)
- $y = \frac{15}{8}x + \dots$ B1
- $y = \frac{15}{8}x + 2$ or $y = mx + 2$ B1
- Deduct 1 mark if "y = " missing

[7]

9.

$$\sin 60 = \frac{x}{8} \quad \text{[M1]}$$
$$\text{Replace } \sin 60 \text{ by } \frac{\sqrt{3}}{2} \quad \text{so} \quad \frac{\sqrt{3}}{2} = \frac{x}{8} \quad \text{[B1]}$$
$$x = 4\sqrt{3} \quad \text{[A1]}$$