

Revision F5 (October Exam) B [52] MARKSCHEME

1.

(a) $\sqrt{18}$

M1,A1cao

M1 for $AB^2 = 3^2 + 3^2$

A1 for answer

(b) $y = x+2$

M1,A1,A1ft

M1 for Attempt to find gradient

A1 for Gradient = $\frac{3}{3} = 1$

Ft their gradient but must be + 2.

[5]

2.

Alternative method 1		
$\frac{5}{6+5+7}$ or $\frac{5}{18}$ or $\frac{7}{9+7+8}$ or $\frac{7}{24}$	M1	oe fraction, decimal or percentage
Attempt to convert to any common denominator eg $\frac{20}{72}$ and $\frac{21}{72}$ or to decimals eg 0.27(7) and 0.29 eg 3 0.28 and 0.29 or to percentages eg 28% and 29%	M1	Attempt to convert both to comparable form with one correct oe
$\frac{20}{72}$ and $\frac{21}{72}$ and Yes	A1	oe fractions, decimals or percentages
Alternative method 2		
Chooses a number of counters that is a multiple of 18 and 24 eg 72	M1	
$5 \times \frac{\text{their } 72}{18}$ or 20 or $7 \times \frac{\text{their } 72}{24}$ or 21	M1	
20 and 21 and Yes	A1	
Alternative method 3		
35 : 42 : 49 and 35 : 45 : 40	M1	
$\frac{35}{35 + \text{their } 42 + \text{their } 49}$ or $\frac{35}{126}$ or $\frac{35}{35 + \text{their } 45 + \text{their } 40}$ or $\frac{35}{120}$	M1	
$\frac{35}{126}$ and $\frac{35}{120}$ and Yes	A1	

3.

Throughout this question equivalent fractions or decimals to 2dp are acceptable.

(a) $p + \text{sum of given probs} = 1$ M1
Or equivalent e.g. $1 - \frac{5}{9} = p$

$p = \frac{1}{9}$ A1
oe. e.g. $\frac{2}{18}, 0.11\dots$

(b) (i) $\frac{5}{6} \cdot \frac{1}{6} \cdot \frac{5}{6} \cdot \frac{1}{6} \cdot \frac{5}{6}$ B2
-1eeoo

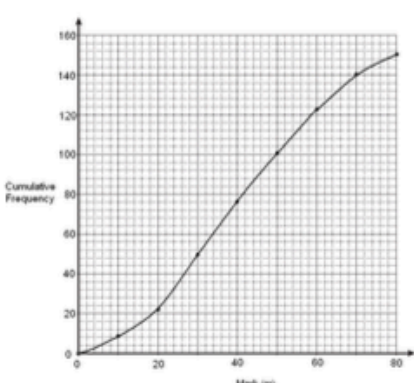
(ii) Sum of 4, not 4 and not 4, 4 M1
Must be $p_1 \times p_2 + p_3 \times p_4$

Correct probs $\frac{1}{6} \times \frac{5}{6} + \frac{5}{6} \times \frac{1}{6} = (\frac{5}{36} + \frac{5}{36})$ A1

$= \frac{10}{36} = \frac{5}{18}$ A1 ft
ft their probs if M1 awarded

[7]

4.

(a)	(i)	Table: 9 23 49 76 101 123 140 150	2 2 A01.3a	M1 for attempt to accumulate the values	
	(ii)		4 1 A01.3b 3 A02.3b	B1 for labelling axes B1 for correct curve through points B1 for at least six points correctly plotted	
(b)		28 – 32	3 2 A02.1b 1 A02.3a	M1 for 45 or 105 seen A1 for corresponding answer FT <i>their graph</i>	
(c)		The boundaries are set from approximations based on grouped data, not the actual scores obtained by the students	1 1 A02.5b		

5.

(a) (i) Reflection B1
Accept mirror image or mirrored but NOT mirror or flip

in $x = -1$ B1
MUST give equation of mirror line

(ii) correct triangle B1

(b) (i) $\frac{1}{2}$ B1

(ii) $(-2, -1)$ B1
1 mm tolerance on reading from graph

[5]

6.

- (a) (i) 0.6×10 M1
 $\frac{0.6}{10} \times 100$ M0
 $= 6$ A1
M1 seen then $\frac{6}{10} \rightarrow$ penalise once on whole paper
- (ii) 0.44×50 M1
Allow M1 for 0.48×50 (misread)
 $= 22$ A1
- (b) 0.4 B1
oe $1 - 0.6 = 0.4$ B0
- (c) (i) 2 B1
 $\frac{2}{5} \rightarrow$ penalise if not already penalised in (a)
- (ii) 0.4×0.4 M1
 $= 0.16$ A1 ft
ft their (b) which must be a probability or correct
- [8]

7.

- (a) $y = \frac{k}{x}$ or $y \propto \frac{1}{x}$ M1
oe
- $(16.5 = \frac{k}{20})$ M1
- $k = 330$ ($y = \frac{330}{x}$ oe) A1
Only need the equation if have not seen $y = \frac{k}{x}$ earlier
- (b) $x = \frac{(\text{their } k)}{75}$ M1
4.4 A1
- [5]

8.

Sight of 1.072

B1

$$7.2\% \text{ of } 2000 = 144$$

$(2000) \times \text{'their } 1.072^{10}$

M1 A1

Their 1.072 must be 1.72 or 1.0072

Calculating at least 5 intermediate values correctly

*2144, 2298.37 (368), 2463.85(0496), 2641.25 (.247732),
2831.42 (.417568) M1*

All 10 correct A1

3035.28(.279633), 3253.82(.819767),

3488.09 (.09479), 3739.24(.237615)

4008.46(.462723)

No penalty for rounding or truncating to nearest pound or 1 decimal place.

*Truncated values 2144, 2298, 2463, 2640, 2830, 3033, 3251,
3485, 3735, 4004 (4003.82)*

*Rounded values 2144, 2298, 2463, 2640, 2830, 3034, 3252,
3486, 3737, 4006 (4006.06)*

No penalty for incorrect money notation

eg 4008.5 > 2 × 2000

Yes 4008.(46) or 2.004(2..)

A1ft

ft if only one error made and relevant conclusion drawn.

Accept $1.072^{10} > 2$ for 3/4 marks

*NB student who takes 2000 as year 1 gets to 3739 for year
10 and says 'no' 2/4*

SC 2000×1.072^9 2/4 marks (B1, M1)

[4]

9.

$$\sin 60 = \frac{x}{8} \quad [M1]$$

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

$$x = 4\sqrt{3} \quad [A1]$$

10.

$$12^2 + 7^2 (= 193)$$

M1

$\sqrt{\text{their } 193}$ or 13.89(...) or 13.9 seen

M1 dep

$$\frac{1}{2} \text{ their } 13.89 \div 11 = \cos x$$

M1

$$0.63 (47...)$$

A1

$$50.8$$

A1

[5]