

## Revision F5 (All topics) [52] MARKSCHEME

1.

- (a) Line  $y = 1$  drawn or points on curve M1  
*Accept  $y = 1$  written in body of script.*
- 0.8, -3.8 ( $\pm 0.1$ ) A1
- (b) Attempt to split equation into M1  
 $x^2 + 3x - 2 = ax + b$   
*Or  $x^2 + 3x - 2 - (x^2 + 2x - 1)$*   
*Or  $x^2 + 3x - 2 + ax + b = x^2 + 2x - 1$*
- Line ( $y = x - 1$ ) drawn A1
- 0.4, -2.4 ( $\pm 0.1$ ) A1  
*f.t. on their line if M1 awarded,*  
*e.g.  $y = x + 1(1, -3)$ ,  $y = 1 - x(0.6 (0.7), -4.6$*   
 *$(-4.7)$ ,  $y = -1 - x(0.2, -4.2)$*

[5]

2. Multiply by  $\frac{3-\sqrt{3}}{3-\sqrt{3}}$  [M1] soi  
 Denominator becomes 6 [B1]  
 Attempt to expand the numerator [M1] at least 2 terms correct  
 $9\sqrt{3} - 3\sqrt{3}\sqrt{3} + 9 - 3\sqrt{3}$  oe  
 $\frac{6\sqrt{3}}{6}$  [A1]  
 Simplifies to  $\sqrt{3}$  [A1]

3.

(a)	$k^5$	1 1 AO1.3a		
(b)	$12m^{\frac{9}{2}}$	2 2 AO1.3a	B1 for $m^{\frac{9}{2}}$ or $m^{4\frac{1}{2}}$ or $m^{4.5}$	Allow $12m^{4\frac{1}{2}}$ or $12m^{4.5}$
(c)	$25p^{17}$	3 3 AO1.3b	B2 for $p^{17}$ seen Or B1 for 25 or $p^{14}$ seen	

4.

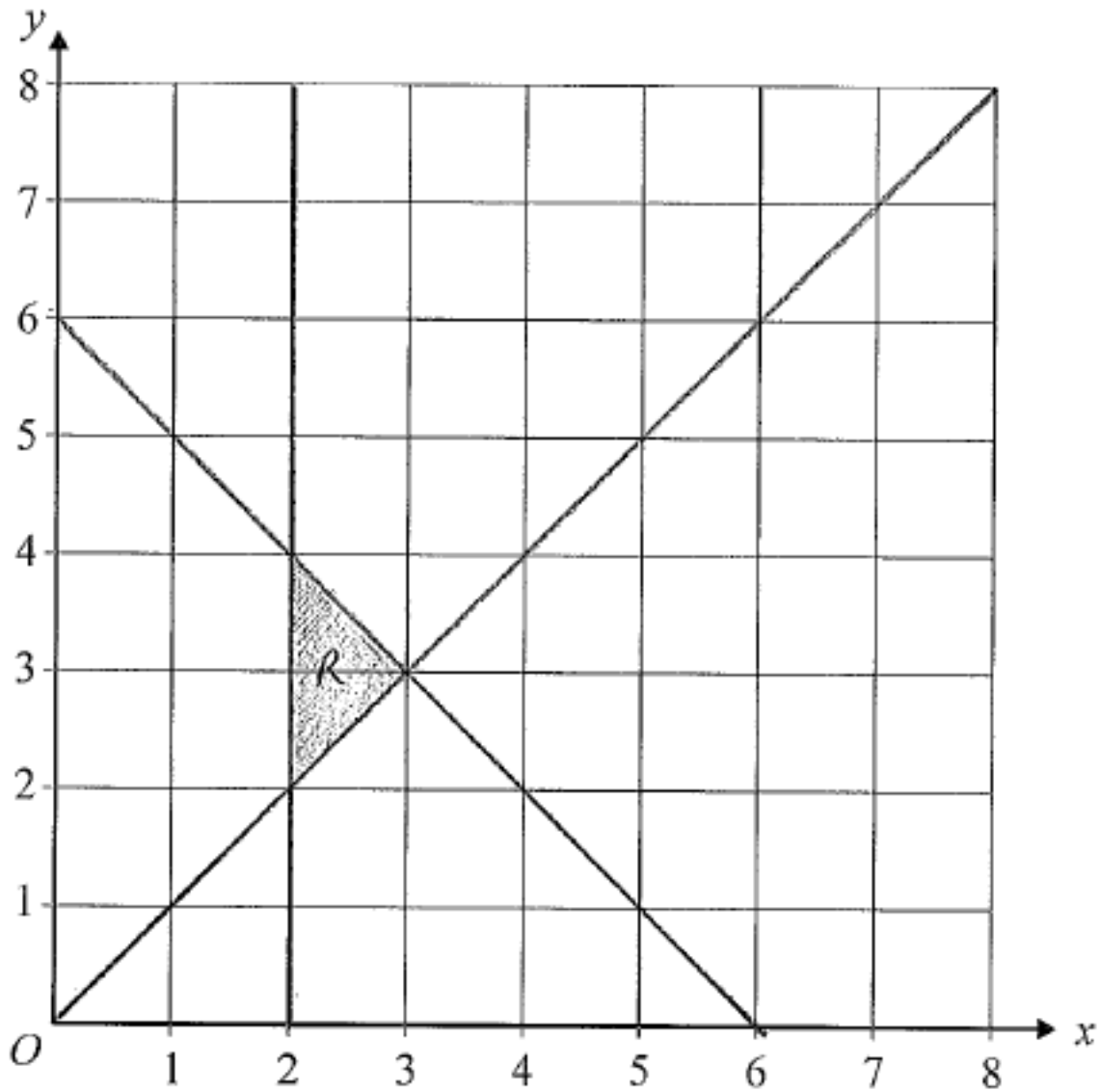
(a)	$2 \leq x \leq 5$	3 3 AO1.3b	M1 for factorising $(x-5)(x-2)$ soi A1 for 2 and 5	Answer may be on a number line in which case the ends must be clearly seen
(b)	$[a=] 6$ $[b=] 5$	3 1 AO1.3b 1 AO2.1a 1 AO3.1b	M1 for $y = (x+3)^2 - 4$ M1 for multiplying out and simplifying their $y = (x+3)^2 - 4$	

5.

- (a)  $9 \times \frac{1}{8}$  B1, B1
- $1\frac{1}{8}$  B1
- (b)  $\frac{1}{5^2}$  M1
- $\frac{1}{\sqrt[3]{15625}}; 5^2 = 25$
- $\frac{1}{25}$  A1

[5]

6.



(2, 2) (2, 3) (2, 4) (3, 3)

- (a) Vertical line at 2 [B1]  
 Diagonal line  $y = x$  as shown or diagonal line  $x + y = 6$  as shown [B1]  
 All lines drawn are solid [B1]  
 Correct region labelled [A1]
- (b) All 4 points correctly stated [A1]

7.

$\frac{\sin y}{16} = \frac{\sin 34}{10}$	M1	oe
$\frac{\sin 34}{10} \times 16$ or [63.47, 63.5]	M1	
[116.5, 116.53]	A1	

8.

- (a)  $7 + 5x - 2x^2 = 0$  M1  
 $(7 - 2x)(1 + x)$  oe M1  
 3.5 and -1 A1  
 $(3.5, 0)$  and  $(-1, 0)$  A1
- (b)  $\frac{3.5 + -1}{2}$  M1  
 1.25 A1

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9.

$\frac{2x-1}{x-4} = \frac{16x+1}{2x-1}$ $(2x-1)^2 = (16x+1)(x-4)$ $12x^2 - 59x - 5 = 0$ $(12x+1)(x-5) = 0$	$-\frac{1}{12}, 5$	P1 for process to write as an equation P1 for process to clear the fractions P1 for process to write equation in form $ax^2 + bx + c = 0$ P1 for process to solve the equation A1 cao
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10.

- (a)  $(2x-1)^2 = 4x^2 - 4x + 1$  M1  
*Attempt to square, condone one error*  
*(3/4 terms OK)*
- $x^2 + 4x^2 - 4x + 1 = 2$   
 or  $x^2 + (2x-1)^2 = 2$  M1  
*ft their expansion ... this mark is for substitution*
- $5x^2 - 4x - 1 = 0$  A1  
*Only allow rearrangement which gives correct equation oe*  
*eg.  $5x^2 - 4x = 1$  or  $5x^2 = 4x + 1$*
- (b)  $(5x+1)(x-1) = 0$  or use of formula M1  
*allow one error in formula / sign errors in brackets*
- $x = -0.2$  or 1 A1  
*both solutions alternatively (1, 1) earns A1*
- $y = -1.4$  or 1 A1  
*both solutions and  $(-0.2, -1.4)$  earns A1*

[6]