



JABATAN PELAJARAN NEGERI TERENGGANU

PEPERIKSAAN PERCUBAAN SPM 2012

3472/1

ADDITIONAL MATHEMATICS

Kertas 1

Peraturan Pemarkahan

Ogos 2012

INSTRUCTIONS FOR EXAMINERS**1. MARKING GUIDE**

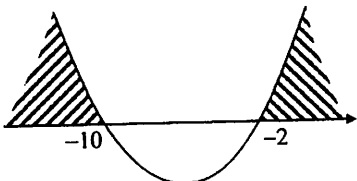
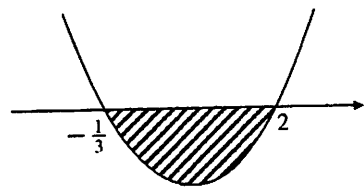
- 1.1 Mark all the answers.
- 1.2 Do not mark working / answer that has been cancelled.
- 1.3 Answer written in the answer space or at the end of the working is considered the final answer.
- 1.4 Full mark is given for the correct answer without referring to the working.
- 1.5 If the final answer is wrong, award the corresponding maximum mark as stated in the marking scheme.
- 1.6 If more than one final answer is given, choose the answer with the highest mark unless stated otherwise in the marking scheme.
- 1.7 If the final answer is correct, but stated wrongly in the answer space, full mark is not awarded.

2. NOTATION

- 2.1 Full mark for each question in this paper is either 2, 3 or 4.
 - 2.2 If full mark is not awarded, the following system is used :
 - B3** – 3 marks is awarded if the answer at this stage is correct.
 - B2** – 2 marks is awarded if the answer at this stage is correct.
 - B1** – 1 mark is awarded if the answer at this stage is correct.
 - 2.3 Only one out of B3, B2 or B1 is awarded for each question or part of a question.
3. Accept answers correct to 4 significant figures unless stated otherwise in the marking scheme.
 4. Accept other correct methods which are not given in the marking scheme.
 5. Accept answers in Bahasa Melayu.
 6. Calculating total marks.

$$\frac{\sum \text{Score for Paper 1} + \sum \text{Score for Paper 2}}{180} \times 100\%$$

TRIAL EXAM SPM 2012
MARK SCHEME FOR ADDITIONAL MATHS. PAPER 1

No.	Mark Scheme	Σ Mark
1	(a) $k = 6$ [1] (b) $g(x) = x - 1$ or $g : x \rightarrow x - 1$ [1]	2
2	$m = \frac{1}{8}, n = -7$ (both) [3] $\frac{1}{4} = 2m$ or $\frac{-n}{4} = \frac{7}{4}$ B2 $\frac{x-n}{4}$ or equivalent B1	3
3	$p = -2$ 2 $3(-1)[2(-1)-1] = 5 - 2p$ B1	2
4	$k < -10, k > -2$ 3  B2 $(-6 - k)^2 - 4(2)(2) > 0$ B1 use $b^2 - 4ac > 0$	3
5	$-\frac{1}{3} < x < 2$ [3]  B2 $x = -\frac{1}{3}, 2$ B1	3
6	(a) $k = 1$ [1] $p = -2$ [1] (b) $x = 2$ [1]	3

No.	Mark Scheme	Σ Mark
7	$3x^2 + 3y^2 + 24x - 8y + 36 = 0 \quad [3]$ $2\sqrt{(x+3)^2 + (y-2)^2} = \sqrt{(x-0)^2 + (y-4)^2} = 4 \quad \text{or equivalent} \quad \text{B2}$ $\sqrt{(x+3)^2 + (y-2)^2} \quad \text{or} \quad \sqrt{(x-0)^2 + (y-4)^2} \quad \text{B1}$	3
8	$\theta = 0.48 \quad [3]$ $\frac{1}{2}(10)^2 \theta = \frac{1}{2}(6)(8) \quad \text{B2}$ $\frac{1}{2}(10)^2 \theta \quad \text{or} \quad \frac{1}{2}(6)(8) \quad \text{B1}$	3
9	<p>(a) $k = 5 \quad [2]$</p> $3k + 3 - 2k = 5k + 1 - (3k + 3) \quad \text{B1}$ <p>(b) 88 $[2]$</p> $\frac{4}{2}[2(10) + (4-1)8] \quad \text{B1 follow thro'}$	4
10	<p>(a) $\frac{3}{4} \quad [2]$</p> $8 = \frac{2}{1-r} \quad \text{B1}$ <p>(b) $\frac{3}{2} \quad [1]$</p>	3
11	$x = \frac{3}{2} \quad [4]$ $5^{2x} = 5^3 \quad \text{B3}$ $5^{2x} = 125 \quad \text{B2}$ $5^{2x} = 100 + \frac{5^{2x}}{5} \quad \text{B1}$	4

No.	Mark Scheme	Σ Mark
12	$4 + a - \frac{b}{2}$ [4] $4\log_5 5 + \log_5 x - \frac{1}{2}\log_5 y$ B3 $\log_5 625 + \log_5 x - \log_5 \sqrt{y}$ B2 $\log_5 625x - \log_5 \sqrt{y}$ B1	4
13	$x = -\frac{3}{4}$ [4] $4(x+3) = 9$ B3 $\log_9 4(x+3) = 1$ B2 $\log_9 4 + \log_9(x+3) = 1$ or $\log_3 2 + \frac{\log_3(x+3)}{\log_3 9} = 1$ B1	4
14	65 [3] $4 = \frac{p}{5} - 9$ B2 $\sigma = \sqrt{\frac{p}{5} - 9}$ or $\sigma^2 = \frac{p}{5} - 9$ B1	3
15	$(3, 4)$ [3] $2(x-5) = -4$ B2 $\frac{dy}{dx} = 2x - 10$ or $m_2 = \frac{1}{4}$ B1	3
16	-16 [4] $f''(x) = 8(2x-1)^{-3}(2)$ or equivalent B3 $f'(x) = \frac{-4}{(2x-1)^2}$ or equivalent B2 $\frac{(2x-1)(4) - 4x(2)}{(2x-1)^2}$ or $(2x-1)(4)$ or $4x(2)$ B1	4

SULIT

No.	Mark Scheme	Mark
17	$\frac{3}{16} \quad [3]$ $\int_1^2 f(x) dx = \frac{1}{4} \left[\frac{2x^2-1}{x^2} \right]_1^2 \quad \text{OR} \quad \int_1^2 f(x) dx = \frac{1}{2} \left[\frac{x^{-2}}{-2} \right]_1^2 \quad \text{B2}$ $\frac{1}{4} \left[\frac{2x^2-1}{x^2} \right]_1^2 \quad \text{OR} \quad f(x) = \frac{1}{2} x^{-3} \quad \text{B1 ignore the limits}$	3
18	<p>(a) 10 [1]</p> <p>(b) $k = 12$ [3]</p> $\left[\frac{kx^2}{2} \right]_1^2 \quad \text{B2 for integrate}$ $\int_1^2 kx dx - \int_1^2 f(x) dx \quad \text{B1 (separate)}$	4
19	<p>$x = 30^\circ, 90^\circ, 150^\circ, 270^\circ$ [3]</p> <p>$\cos x = 0$, $\sin x = \frac{1}{2}$ B2</p> <p>$\cos x (1 - 2 \sin x) = 0$</p> <p>$\cos x - 2 \sin x \cos x = 0$ B1</p>	3
20	<p>$m = 1, n = 19$ (both) [3]</p> <p>$m = 1$ or $n = 19$ B2</p> <p>OR $7 = 3(m) + 4$, $n = 3(5) + 4$ (both) B2</p> <p>$\frac{y}{x^2} = 4 + 3x$ B1</p>	3

No.	Mark Scheme	Σ Mark
21	(a) $2i + 5j$ [1] (b) $\frac{2i+5j}{\sqrt{29}}$ [2] $\sqrt{2^2 + 5^2}$ B1	3
22	$\frac{1}{45}$ [3] $\frac{2}{10} \times \frac{1}{9}$ B2 $\frac{2}{10}$ or $\frac{1}{9}$ B1	3
23	(a) 5040 [1] (b) 720 [2] $5! \times 3!$ or ${}^5P_5 \times {}^3P_3$ or $5 \times 4 \times 3 \times 2 \times 1 \times 3 \times 2 \times 1$ B1	3
24	(a) 350 [2] ${}^7C_4 \times {}^5C_2$ B1 (b) 112 [2] ${}^5C_4 \times {}^7C_2$ or ${}^5C_5 \times {}^7C_1$ B1	4
25	$h = 1.2$ [3] 0.1151 seen B2 0.2514 or 0.8849 B1	3

END OF MARK SCHEME