

NAMA:.....

NO. ANGKA GILIRAN:.....

3472/1  
 Additional  
 Mathematics  
 Paper 1  
 Sept.  
 2011  
 2 hours



JABATAN PELAJARAN NEGERI PERAK

PEPERIKSAAN PERCUBAAN  
 SIJIL PELAJARAN MALAYSIA  
 NEGERI PERAK TAHUN 2011

ADDITIONAL MATHEMATICS

Kertas 1

Dua Jam

JANGAN BUKA KERTAS SOALAN  
 INI SEHINGGA DIBERITAHU

1. *Tulis nama dan angka giliran anda pada ruang yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
4. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Inggeris atau bahasa Melayu.*
5. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

<i>Untuk Kegunaan Pemeriksaan</i>		
Soalan	Markah Penuh	Markah Diperolehi
1	3	
2	4	
3	3	
4	2	
5	3	
6	3	
7	3	
8	3	
9	2	
10	3	
11	2	
12	4	
13	4	
14	3	
15	3	
16	4	
17	3	
18	4	
19	3	
20	3	
21	3	
22	3	
23	4	
24	4	
25	4	
<b>TOTAL</b>	<b>80</b>	

Kertas soalan ini mengandungi 20 halaman bercetak.

The following formulae may be helpful in answering the questions. The symbols given are the ones commonly used.

Rumus-rumus berikut boleh membantu anda menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

### ALGEBRA

$$1. \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$2. \quad a^m \times a^n = a^{m+n}$$

$$3. \quad a^m \div a^n = a^{m-n}$$

$$4. \quad (a^m)^n = a^{mn}$$

$$5. \quad \log_a mn = \log_a m + \log_a n$$

$$6. \quad \log_a \frac{m}{n} = \log_a m - \log_a n$$

$$7. \quad \log_a m^n = n \log_a m$$

$$8. \quad \log_a b = \frac{\log_c b}{\log_c a}$$

$$9. \quad T_n = a + (n-1)d$$

$$10. \quad S_n = \frac{n}{2}[2a + (n-1)d]$$

$$11. \quad T_n = ar^{n-1}$$

$$12. \quad S_n = \frac{a(r^n - 1)}{r - 1} = \frac{a(1 - r^n)}{1 - r}, \quad r \neq 1$$

$$13. \quad S_\infty = \frac{a}{1 - r}, \quad |r| < 1$$

### CALCULUS KALKULUS

$$1. \quad y = uv, \quad \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$2. \quad y = \frac{u}{v}, \quad \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$3. \quad \frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$$

4. Area under a curve

*Luas di bawah lengkung*

$$= \int_a^b y \, dx \quad \text{or (atau)}$$

$$= \int_a^b x \, dy$$

5. Volume of revolution

*Isipadu kisanan*

$$= \int_a^b \pi y^2 \, dx \quad \text{or (atau)}$$

$$= \int_a^b \pi x^2 \, dy$$

**STATISTICS**  
**STATISTIK**

1.  $\bar{x} = \frac{\sum x}{N}$
2.  $\bar{x} = \frac{\sum fx}{\sum f}$
3.  $\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$
4.  $\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$
5.  $m = L + \left( \frac{\frac{1}{2}N - F}{f_m} \right) C$
6.  $I = \frac{Q_1}{Q_0} \times 100$
7.  $\bar{l} = \frac{\sum W_i l_i}{\sum W_i}$
8.  ${}^n P_r = \frac{n!}{(n-r)!}$
9.  ${}^n C_r = \frac{n!}{(n-r)! r!}$
10.  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
11.  $P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$
12. Mean / Min ,  $\mu = np$
13.  $\sigma = \sqrt{npq}$
14.  $Z = \frac{X - \mu}{\sigma}$

**GEOMETRY**  
**GEOMETRI**

1. Distance / Jarak  
 $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
2. Midpoint / Titik tengah  
 $(x, y) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$
3. A point dividing a segment of a line  
*Titik yang membahagi suatu tembereng garis*  
 $(x, y) = \left( \frac{nx_1 + mx_2}{m+n}, \frac{ny_1 + my_2}{m+n} \right)$
4. Area of a triangle / Luas segi tiga  
 $= \frac{1}{2} |(x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)|$
5.  $|r| = \sqrt{x^2 + y^2}$
6.  $\hat{r} = \frac{x \hat{i} + y \hat{j}}{\sqrt{x^2 + y^2}}$

**TRIGONOMETRY**  
**TRIGONOMETRI**

1. Arc length,  $s = r\theta$   
*Panjang lengkok,  $s = j\theta$*
2. Area of sector,  $A = \frac{1}{2}r^2\theta$   
*Luas sektor,  $L = \frac{1}{2}j^2\theta$*
3.  $\sin^2 A + \cos^2 A = 1$   
 $\sin^2 A + \text{kos}^2 A = 1$
4.  $\sec^2 A = 1 + \tan^2 A$   
 $\text{sek}^2 A = 1 + \tan^2 A$
5.  $\text{cosec}^2 A = 1 + \cot^2 A$   
 $\text{kosek}^2 A = 1 + \text{kot}^2 A$
6.  $\sin 2A = 2 \sin A \cos A$   
 $\sin 2A = 2 \sin A \text{kos} A$
7.  $\cos 2A = \cos^2 A - \sin^2 A$   
 $= 2 \cos^2 A - 1$   
 $= 1 - 2\sin^2 A$   
  
 $\text{kos} 2A = \text{kos}^2 A - \sin^2 A$   
 $= 2 \text{kos}^2 A - 1$   
 $= 1 - 2\sin^2 A$
8.  $\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$   
 $\sin(A \pm B) = \sin A \text{kos} B \pm \text{kos} A \sin B$
9.  $\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$   
 $\text{kos}(A \pm B) = \text{kos} A \text{kos} B \mp \sin A \sin B$
10.  $\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$
11.  $\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$
12.  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
13.  $a^2 = b^2 + c^2 - 2bc \cos A$   
 $a^2 = b^2 + c^2 - 2bc \text{kos} A$
14. Area of triangle / *Luas segi tiga*  
 $= \frac{1}{2}ab \sin C$

For  
Examiner's  
Use

Answer **all** questions.  
Jawab **semua** soalan.

- 1 The following information shows set  $A$ , set  $B$  and the relation between set  $A$  and set  $B$  in the form of ordered pairs.

Maklumat berikut menunjukkan set  $A$ , set  $B$  dan hubungan antara set  $A$  dan set  $B$  dalam bentuk pasangan tertib.

$$A = \{ t, v, w \}$$

$$B = \{ 6, 7, 8, 9 \}$$

$$\{(t, 6), (t, 7), (v, 7), (w, x)\}$$

Given that the range of the relation between set  $A$  and set  $B$  is  $\{ 6, 7, 8 \}$ , state  
Diberi julat hubungan antara set  $A$  dan set  $B$  ialah  $\{ 6, 7, 8 \}$ , nyatakan

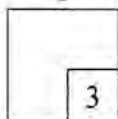
- (a) the image of  $v$ .  
imej bagi  $v$ .
- (b) the value of  $x$ .  
nilai  $x$ .
- (c) the type of the relation.  
jenis hubungan itu.

[3 marks]  
[3 markah]

Answer / Jawapan :

- (a)
- (b)
- (c)

1



3



- 2 Given the function  $f : x \rightarrow 3 - x$ ,  $g : x \rightarrow hx^2 - k$  and  $gf : x \rightarrow 3x^2 - 18x + 5$ , find

*Diberi fungsi  $f : x \rightarrow 3 - x$ ,  $g : x \rightarrow hx^2 - k$  dan  $gf : x \rightarrow 3x^2 - 18x + 5$ , cari*

- (a)  $gf(-2)$ ,  
 (b) the value of  $h$  and of  $k$ .  
*nilai  $h$  dan nilai  $k$ .*

[4 marks]  
 [4 markah]

Answer / Jawapan :

(a)

(b)

For  
 Examiner's  
 Use

2



- 3 The function  $g$  is defined as  $g : x \rightarrow 7x - 4$ , find  
*Fungsi  $g$  ditakrifkan sebagai  $g : x \rightarrow 7x - 4$ , cari*

- (a)  $g^{-1}(x)$ ,  
 (b) the value of  $p$  if  $g^{-1}(p) = 2$ .  
*nilai  $p$  jika  $g^{-1}(p) = 2$ .*

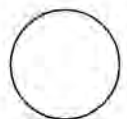
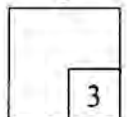
[3 marks]  
 [3 markah]

Answer / Jawapan :

(a)

(b)

3



For  
Examiner's  
Use

- 4 It is given that  $-3$  is one of the roots of the quadratic equation  $x^2 + 5x - p = 0$ .  
Find the value of  $p$ . [2 marks]

*Diberi bahawa  $-3$  ialah satu daripada punca persamaan kuadratik*

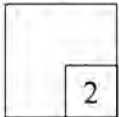
$$x^2 + 5x - p = 0.$$

*Cari nilai  $p$ .*

[2 markah]

Answer / Jawapan :

4



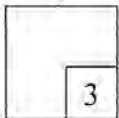
- 5 Find the range of the values of  $x$  for  $3 - 5x \geq 2x^2$ . [3 marks]

*Cari julat nilai  $x$  bagi  $3 - 5x \geq 2x^2$ .*

[3 markah]

Answer / Jawapan :

5



- 6 Diagram 6 shows the graph of a quadratic function  $y = f(x)$ .  
The straight line  $y = -16$  is a tangent to the curve  $y = f(x)$ .

*Rajah 6 menunjukkan suatu graf fungsi kuadratik  $y = f(x)$ .*

*Garis lurus  $y = -16$  ialah tangen kepada lengkung  $y = f(x)$ .*

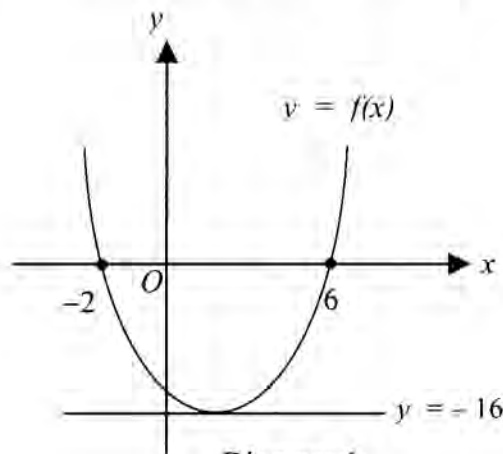


Diagram 6

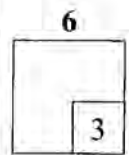
- (a) Write the equation of the axis of symmetry of the curve.  
*Tulis persamaan paksi simetri bagi lengkung itu.*
- (b) Express  $f(x)$  in the form of  $(x + b)^2 + c$ , where  $b$  and  $c$  are constants.  
*Ungkapkan  $f(x)$  dalam bentuk  $(x + b)^2 + c$ , dengan keadaan  $b$  and  $c$  ialah pemalar.*

[3 marks]  
[3 markah]

Answer / Jawapan :

(a)

(b)



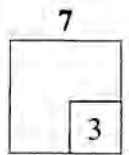
7 Solve  $3^{n-2} \times 27^n = \frac{1}{81}$ .

[3 marks]

*Selesaikan  $3^{n-2} \times 27^n = \frac{1}{81}$ .*

[3 markah]

Answer / Jawapan :



For  
Examiner's  
Use

- 8 Solve the equation :  
*Selesaikan persamaan :*

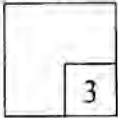
$$\log_2 x - \log_4 x = 3$$

[3 marks]

[3 markah]

Answer / *Jawapan :*

8



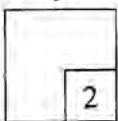
- 9 The first three terms of a geometric progression are  $x + 10$ ,  $x$  and  $x - 8$ .  
Find the value of  $x$ . [2 marks]

*Tiga sebutan pertama suatu jangjang geometri adalah  $x + 10$ ,  $x$  dan  $x - 8$ .  
Cari nilai  $x$ .*

[2 markah]

Answer / *Jawapan:*

9



For  
Examiner's  
Use

10 Given the geometric progression  $-24, 8, -\frac{8}{3}, \dots$ , find

*Diberi suatu jantang geometri  $-24, 8, -\frac{8}{3}, \dots$ , cari*

- (a) the common ratio  
*nisbah sepunya*
- (b) the sum to infinity of the progression  
*hasil tambah ketakterhinggaan jantang geometri tersebut.*

[3 marks]

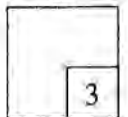
[3 markah]

Answer / Jawapan:

(a)

(b)

10



11 The first three terms of an arithmetic progression are 56, 53 and 50. The  $n$ th term of this progression is negative.

Find the smallest value of  $n$ .

[2 marks]

*Tiga sebutan pertama suatu jantang aritmetik ialah 56, 53 dan 50. Sebutan ke- $n$  bagi jantang tersebut adalah negatif.*

*Cari nilai terkecil bagi  $n$ .*

[2 markah]

Answer / Jawapan:

11



For  
Examiner's  
Use

- 12 Two variables,  $x$  and  $y$ , are related by the equation  $y = 10^{a + bx^2}$ , where  $a$  and  $b$  are constants. Diagram 12 shows the straight line graph obtained by plotting  $\log_{10} y$  against  $x^2$ .

Dua pembolehubah,  $x$  dan  $y$ , dihubungkan oleh persamaan  $y = 10^{a + bx^2}$  dengan keadaan  $a$  dan  $b$  adalah pemalar. Rajah 12 menunjukkan graf garis lurus yang diperolehi dengan memplotkan  $\log_{10} y$  melawan  $x^2$ .

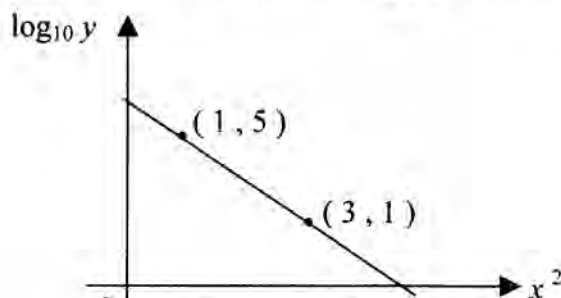


Diagram 12  
Rajah 12

Find the value of  $a$  and of  $b$ .

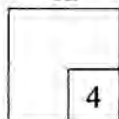
Cari nilai  $a$  dan nilai  $b$ .

[4 marks]

[4 markah]

Answer / Jawapan :

12



- 13 Given that the points  $P(1,4)$ ,  $Q(3,0)$  and  $R(6,h)$  are collinear, find

Diberi titik-titik  $P(1,4)$ ,  $Q(3,0)$  dan  $R(6,h)$  adalah segaris, cari

- (a) the value of  $h$ ,  
nilai  $h$ ,
- (b) the ratio of  $PQ : QR$  in the form of  $m : n$ .  
Nisbah bagi  $PQ : QR$  dalam bentuk  $m : n$ .

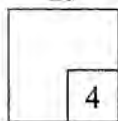
[4 marks]

[4 markah]

Answer / Jawapan :

(a)

13



(b)



For  
Examiner's  
Use

- 14 It is given that the straight line  $\frac{x}{p} - \frac{y}{12} = 1$  and  $px - 3y + 15 = 0$  are parallel.

Find the values of  $p$ .

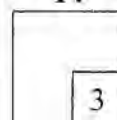
Diberi bahawa garis-garis lurus  $\frac{x}{p} - \frac{y}{12} = 1$  dan  $px - 3y + 15 = 0$  adalah selari.

Cari nilai-nilai  $p$ .

[3 marks]  
[3 markah]

Answer / Jawapan :

14



- 15 Given that  $\overrightarrow{AB} = k\mathbf{i} + 8\mathbf{j}$  and  $|\overrightarrow{AB}| = 10$ , where  $k > 0$ , find ,

Diberi  $\overrightarrow{AB} = k\mathbf{i} + 8\mathbf{j}$  dan  $|\overrightarrow{AB}| = 10$ , dengan keadaan  $k > 0$ , cari

- (a) the value of  $k$   
nilai  $k$ .
- (b) the unit vector in the direction of  $\overrightarrow{AB}$ .  
vektor unit dalam arah  $\overrightarrow{AB}$ .

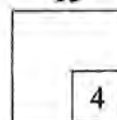
[3 marks]  
[3 markah]

Answer / Jawapan :

(a)

(b)

15



For  
Examiner's  
Use

- 16 Diagram 16 shows a triangle  $ABC$ , the point  $D$  lies on  $BC$  such that  $BD : BC = 1 : 4$ .  
Rajah 16 menunjukkan satu segitiga  $ABC$ , titik  $D$  terletak pada garis  $BC$  dengan keadaan  $BD : BC = 1 : 4$ .

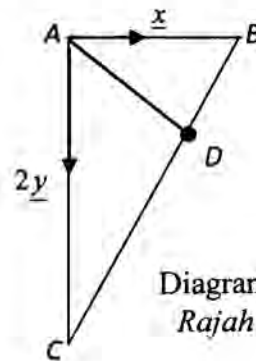


Diagram 16  
Rajah 16

Express in terms of  $\underline{x}$  and  $\underline{y}$ ,

Ungkapkan, dalam sebutan  $\underline{x}$  dan  $\underline{y}$ ,

- (a)  $\overline{BC}$   
(b)  $\overline{AD}$

[4 marks]

[4 markah]

Answer / Jawapan :

(a)

(b)

16



- 17 Given that  $\cos \theta = k$  for  $270^\circ \leq \theta \leq 360^\circ$ .

Diberi kos  $\theta = k$  untuk  $270^\circ \leq \theta \leq 360^\circ$ .

Find in terms of  $k$

Cari dalam sebutan  $k$

- (a)  $\sec \theta$   
sek  $\theta$

- (b)  $\tan \theta$

[3 marks]

[3 markah]

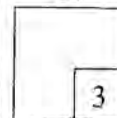
Answer / Jawapan :

(a)

(b)

For  
Examiner's  
Use

17



- 18 Diagram 18 shows a sector  $OQS$  of a circle with centre  $O$  and radius 13 cm. Given that  $OPRT$  is a trapezium with  $OT = 12$  cm and  $PR = 2 RT$ .

Rajah 18 menunjukkan sebuah sektor  $OQS$  dengan pusat  $O$  dan berjejari 13 cm. Diberi  $OPRT$  merupakan sebuah trapezium dengan  $OT = 12$  cm dan  $PR = 2 RT$ .

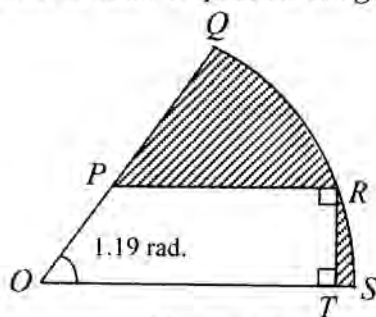


Diagram 18  
Rajah 18

Find  
Cari

- (a) the length of  $RT$  in cm,  
panjang  $RT$  dalam cm,
- (b) the area, in  $\text{cm}^2$ , of the shaded region.  
luas, dalam  $\text{cm}^2$ , kawasan berlorek.

[4 marks]  
[4 markah]

Answer / Jawapan :

(a)

(b)

18



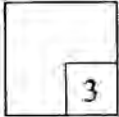
For  
Examiner's  
Use

- 19 Given that  $h(x) = \frac{1}{(2x-3)^2}$ , evaluate  $h''(1)$ . [3 marks]

Diberi  $h(x) = \frac{1}{(2x-3)^2}$ , nilaikan  $h''(1)$ . [3 markah]

Answer / Jawapan :

19



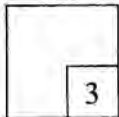
- 20 Two variables,  $x$  and  $y$ , are related by the equation  $y = 4x + \frac{3}{x}$ .  
Given that  $y$  increases at a constant rate of 5 units per second,  
find the rate of change of  $x$  when  $x = 3$ . [3 marks]

Dua pembolehubah,  $x$  and  $y$ , dihubungkan oleh persamaan  $y = 4x + \frac{3}{x}$ .

Diberi  $y$  bertambah dengan kadar malar 5 unit sesaat, cari kadar perubahan  $x$  apabila  $x = 3$ . [3 markah]

Answer / Jawapan :

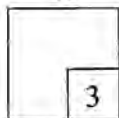
20



- 21 Given  $\frac{dy}{dx} = 6x - 4$  and  $y = 2$  when  $x = -1$ , express  $y$  in terms of  $x$ . [3 marks]

Diberi  $\frac{dy}{dx} = 6x - 4$  dan  $y = 2$  apabila  $x = -1$ , ungkapkan  $y$  dalam sebutan  $x$ . [3 markah]

21



Answer / Jawapan :



- 22 A set of six number has a mean of 7 and a standard deviation of  $\sqrt{5}$ . Find

*Satu set enam nombor mempunyai min 7 dan sisihan piawai  $\sqrt{5}$ . Cari*

(a)  $\sum x$

(b)  $\sum x^2$

[3 marks]

[3 markah]

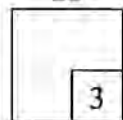
Answer / Jawapan :

(a)

(b)

For  
Examiner's  
Use

22



- 23 A committee of 6 members has to be selected from 5 women and 8 men.

Calculate the number of different ways the committee can be formed if

*Satu jawatan kuasa yang terdiri 6 ahli akan dipilih daripada 5 perempuan dan 8 lelaki.*

*Hitungkan bilangan cara yang berlainan jawatan kuasa itu boleh dibentuk jika*

(a) there is no restriction ,  
*tiada syarat dikenakan ,*

(b) the committee must consist of at least 4 men ,  
*jawatan kuasa mesti terdiri sekurang-kurangnya 4 lelaki*

[4 marks]

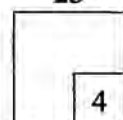
[4 markah]

Answer / Jawapan :

(a)

(b)

23



For  
Examiner's  
Use

- 24 Table 24 shows the result for Additional Mathematics test in two Form 5 classes. *Jadual 24 menunjukkan keputusan ujian Matematik Tambahan bagi dua kelas Tingkatan 5.*

Class Kelas	Number of students <i>Bilangan murid</i>			
	Pass <i>Lulus</i>		Fail <i>Gagal</i>	
	Boy <i>Lelaki</i>	Girl <i>Perempuan</i>	Boy <i>Lelaki</i>	Girl <i>Perempuan</i>
5 Anggun	10	15	3	2
5 Bestari	8	12	13	$x$

Table 24  
*Jadual 24*

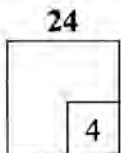
- (a) Given that the probability a girl who passes the Additional Mathematics test from class 5 Bestari is  $\frac{6}{19}$ . Find the value of  $x$ .  
*Diberi kebarangkalian murid perempuan lulus ujian Matematik Tambahan dari kelas 5 Bestari ialah  $\frac{6}{19}$ . Cari nilai  $x$ .*
- (b) If a student is chosen at random from each class, calculate the probability that both students fail in their Additional Mathematics test.  
*Jika seorang pelajar dipilih secara rawak dari setiap kelas, kira kebarangkalian kedua-dua murid gagal dalam ujian Matematik Tambahan mereka.*

[4 marks]  
[4 markah]

Answer / *Jawapan* :

(a)

(b)



- 25 The chest measurement of 20 year old footballers is normally distributed with a mean of 95 cm and a standard deviation of 8 cm.

For  
Examiner's  
Use

*Ukuran dada pemain bola sepak yang berumur 20 tahun tertabur secara normal dengan min 95 cm dan sisihan piawai 8 cm.*

Calculate the probability that a 20 year old footballer chosen at random has a chest measurement of

*Hitungkan kebarangkalian bahawa seorang pemain bola sepak berumur 20 tahun yang dipilih secara rawak mempunyai ukuran dada*

- (a) more than 103 cm,  
*melebihi 103 cm ,*
- (b) between 87 cm and 103 cm.  
*antara 87 cm dan 103 cm.*

[4 marks]

[4 markah]

**END OF QUESTION PAPER**  
**KERTAS SOALAN TAMAT**

25



**INFORMATION FOR CANDIDATES**  
**MAKLUMAT UNTUK CALON**

1. This question paper consists of **25** questions.  
*Kertas soalan ini mengandungi 25 soalan.*
2. Answer **ALL** questions.  
*Jawab semua soalan.*
3. Write your answers in the spaces provided in the question paper.  
*Tulis jawapan anda dalam ruang yang disediakan dalam kertas soalan.*
4. Show your working. It may help you to get marks.  
*Tunjukkan langkah-langkah penting dalam kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.*
5. If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.  
*Sekiranya anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.*
6. The diagram in the questions provided are not drawn to scale unless stated.  
*Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. The marks allocated for each question are shown in brackets.  
*Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.*
8. A list of formulae is provided on pages 3 to 5.  
*Satu senarai rumus disediakan di halaman 3 hingga 5.*
9. A booklet of four-figure mathematical tables is provided.  
*Sebuah buku sifir matematik empat angka disediakan.*
10. You may use a scientific calculator.  
*Anda dibenarkan menggunakan kalkulator saintifik.*
11. Hand in this question paper to invigilator at the end of the examination.  
*Serahkan kertas soalan ini kepada pengawas peperiksaan di akhir peperiksaan.*