



KEMENTERIAN PENDIDIKAN

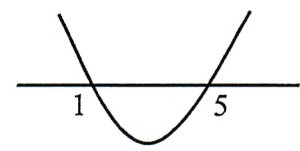
**PENTAKSIRAN DIAGNOSTIK AKADEMIK  
SEKOLAH BERASRAMA PENUH 2025****PEPERIKSAAN PERCUBAAN SIJIL PELAJARAN MALAYSIA  
MATEMATIK TAMBAHAN****3472/1****Kertas 1****Ogos 2025****PERATURAN PEMARKAHAN****MATEMATIK TAMBAHAN****KERTAS 1****UNTUK KEGUNAAN PEMERIKSA SAHAJA****AMARAN**

Peraturan pemarkahan ini **SULIT** dan **Hak Cipta Sekolah Berasrama Penuh**. Kegunaannya khusus untuk pemeriksa yang berkenaan sahaja. Sebarang maklumat dalam peraturan pemarkahan ini tidak boleh dimaklumkan kepada sesiapa. Peraturan pemarkahan ini tidak boleh dikeluarkan dalam apa-apa jua bentuk penulisan dan percetakan.

|                                                                  |   |  |
|------------------------------------------------------------------|---|--|
| <b>NAMA PEMERIKSA</b>                                            | : |  |
| <b>NAMA SEKOLAH</b>                                              | : |  |
| <b>TANDA TANGAN<br/>PENERIMAAN<br/>PERATURAN<br/>PERMARKAHAN</b> | : |  |
| <b>TARIKH</b>                                                    | : |  |
| <b>COP SEKOLAH</b>                                               | : |  |

Peraturan Pemarkahan ini mengandungi 14 halaman bercetak.

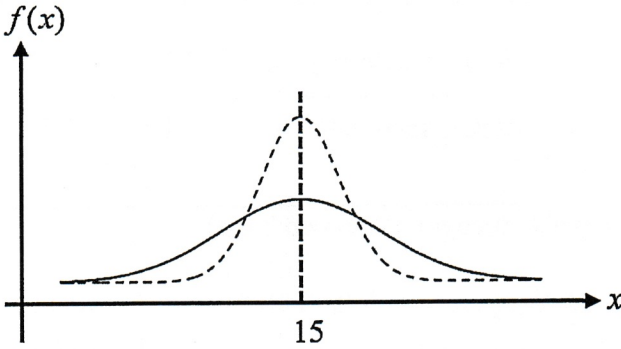
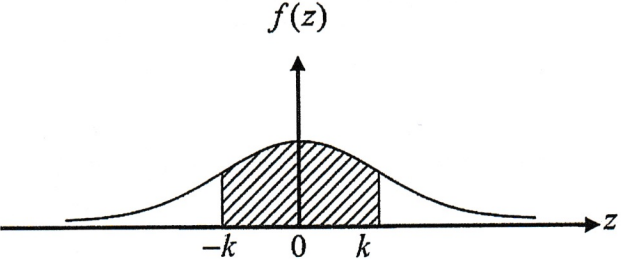
| No |     | Peraturan Pemarkahan                                                                                                                                        | Markah                 | Markah Penuh |
|----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|
| 1  | (a) | $14.2 = \frac{20}{3}\theta$<br><br>$\theta = 2.13 \text{ rad}$                                                                                              | K1<br><br>N1           | 3            |
|    | (b) | 10.65 cm                                                                                                                                                    | N1                     |              |
| 2  | (a) | $S_n = \frac{n}{2}[2(5) + (n-1)(-8)]$<br><br>$S_n = 9n - 4n^2$                                                                                              | K1<br><br>N1           | 5            |
|    | (b) | $9(3n) - 4(3n)^2 + 765 = 0$<br>$4n^2 - 3n - 85 = 0$<br>$(4n+17)(n-5) = 0$<br>$n = -\frac{17}{4} \text{ (ignore) } , n = 5$                                  | K1<br><br>K1<br><br>N1 |              |
| 3  | (a) | Ganti $\frac{1}{x} = \frac{1}{2}$ dan $xy = 0$ dalam $m = \frac{y_2 - y_1}{x_2 - x_1}$<br><br>$m = \frac{6-0}{2-\frac{1}{2}}$<br><br>$m = 4$                | K1<br><br><br><br>N1   | 4            |
|    | (b) | Guna $Y = mX + c$ & Selesaikan untuk $c$ &<br>Ganti $Y = xy$ dan $X = \frac{1}{x}$<br><br>$[6 = 4(2) + c], c = -2$<br><br>$y = \frac{4}{x^2} - \frac{2}{x}$ | K1<br><br><br><br>N1   |              |

| No | Peraturan Pemarkahan |                                                                                                                                                                                                                                                                                                                                                                     | Markah                           | Markah Penuh |
|----|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|
| 4  | (a)                  | <br>$x < 1, x > 5$                                                                                                                                                                                                                                                                 | K1<br>N1                         | 7            |
|    | (b) (i)              | $\alpha + \beta = -m + 6$ dan $\alpha\beta = 5 + n$                                                                                                                                                                                                                                                                                                                 | N1                               |              |
|    | (ii)                 | <u>Guna HTP baharu &amp; HDP Baharu</u><br><br>$[2\alpha + 2\beta = -p @ 2\alpha \times 2\beta = p - 8]$<br><br>Ganti $\alpha + \beta = -m + 6$ & $\alpha\beta = 5 + n$ ke dalam ungkapan HTP baharu & HDP Baharu<br><hr/><br>$2(m - 6) = -p @ 4(5 + n) = p - 8$<br><br>Selesaikan persamaan serentak melibatkan $m$ dan $n$ dalam sebutan $p$<br><br>$m = 20 + 2n$ | K1<br><br>K1<br><br>K1<br><br>N1 |              |
|    |                      |                                                                                                                                                                                                                                                                                                                                                                     |                                  |              |
| 5  | (a)                  | 0                                                                                                                                                                                                                                                                                                                                                                   | N1                               | 6            |
|    | (b)                  | $\overrightarrow{AB} = \overrightarrow{AO} + \overrightarrow{OB}$<br><br>$(4 + m)\underline{i} + (3m - 3)\underline{j} // \begin{pmatrix} 4 + m \\ 3m - 3 \end{pmatrix}$                                                                                                                                                                                            | P1<br>N1                         |              |
|    | (c)                  | $\left(\frac{4 + m}{15}\right)\underline{i} + \left(\frac{3m - 3}{15}\right)\underline{j}$<br><br>$\left \hat{AB}\right  = 1$ & Selesaikan persamaan kuadratik<br><hr/><br>$\sqrt{\left(\frac{4 + m}{15}\right)^2 + \left(\frac{3m - 3}{15}\right)^2} = 1$<br><br>5                                                                                                 | P1<br>K1<br><br>N1               |              |
|    |                      |                                                                                                                                                                                                                                                                                                                                                                     |                                  |              |

| No | Peraturan Pemarkahan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Markah                        | Markah Penuh |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|
| 6  | <p>(a) <math>\frac{2(10)+3x}{2+3} = -2</math> atau <math>\frac{2(8)+3y}{2+3} = 2</math></p> <p><math>(-10, -2)</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>K1</p> <p>N1</p>           |              |
|    | <p>(b) <u>Mencari kecerunan jalanraya atau titik tengah</u></p> <p><math>m = \frac{1}{2}</math> @ <math>(2, -6)</math></p> <p>Ganti <math>(2, -6)</math> ke dalam <math>y = \frac{1}{2}x + c</math> &amp; Selesaikan untuk <math>c</math></p> <p><b>OR</b></p> <p>Ganti <math>(2, -6)</math> ke dalam <math>y - y_1 = \frac{1}{2}(x - x_1)</math></p> <p><b>OR</b></p> <p><math>SX = JX</math></p> <p><math>\sqrt{(x - (-2))^2 + (y - 2)^2} = \sqrt{(x - 6)^2 + (y - (-14))^2}</math></p> <p><math>y = \frac{1}{2}x - 7 // x - 2y - 14 = 0 // 2y = x - 14</math></p> | <p>P1</p> <p>K1</p> <p>N1</p> | 5            |



| No | Peraturan Pemarkahan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Markah                        | Markah Penuh |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|
| 8  | <p>(a) <math>\overset{10p}{5!^5} \text{ atau } {}^{12}P_5</math></p> <p><math>5! \times {}^{12}P_5 \overset{10p}{10p_5} \times {}^{12}P_5</math></p> <p><del>11404800</del> 2814009600</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>P1</p> <p>K1</p> <p>N1</p> |              |
|    | <p>(b) <math>{}^3C_1 \times {}^2C_1 \times {}^2C_1 \times {}^4C_1 @ {}^3C_1 \times {}^2C_0 \times {}^2C_1 \times {}^4C_2 @</math></p> <p><math>{}^3C_1 \times {}^2C_0 \times {}^2C_0 \times {}^4C_3</math></p> <p><b>OR</b></p> <p><math>{}^8C_3 - ({}^2C_1 \times {}^6C_1)</math></p> <p><math>{}^3C_1 \times {}^2C_1 \times {}^2C_1 \times {}^4C_1 + {}^3C_1 \times {}^2C_0 \times {}^2C_1 \times {}^4C_2 +</math></p> <p><math>{}^3C_1 \times {}^2C_0 \times {}^2C_1 \times {}^4C_2 + {}^3C_1 \times {}^2C_0 \times {}^2C_0 \times {}^4C_3</math></p> <p><b>OR</b></p> <p><math>{}^3C_1 \times [{}^8C_3 - ({}^2C_1 \times {}^6C_1)]</math></p> | <p>K1</p> <p>K1</p>           |              |
|    | 132                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N1                            | 6            |

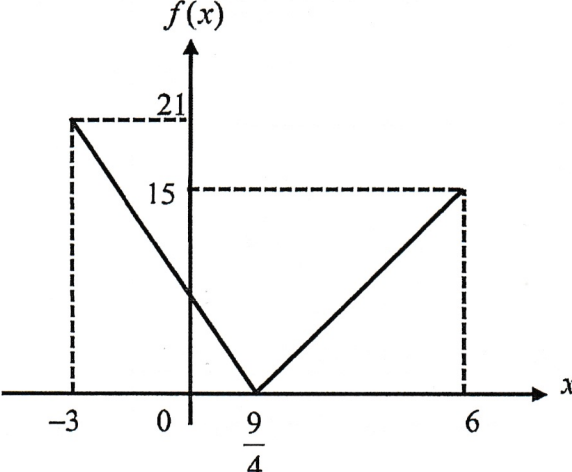
| No  | Peraturan Pemarkahan                                                                                                                                                                  | Markah | Markah Penuh |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|
| 9   | (a)(i) $\mu = 15$<br>$\sigma = 5$                                                                                                                                                     | P1     |              |
|     |                                                                                                                                                                                       | P1     |              |
|     | (ii)<br><br><p>Nota: Pada lakaran graf, tinggi mesti berkurang &amp; kelebaran mesti bertambah.</p> | P1     |              |
| (b) |                                                                                                   | P1     | 5            |
|     | $1 - \frac{m}{2} // \frac{2-m}{2}$                                                                                                                                                    | N1     |              |

| No  |                                                  | Peraturan Pemarkahan                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |              |            |              |            |               |             | Markah        | Markah Penuh |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
|-----|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------|--------------|------------|---------------|-------------|---------------|--------------|--------------|------------|--------------|------------|---------------|-------------|---------------|-------------|-----|----|-------|---|------|---|------|---|-------|----|--|--|
| 10  | (a)                                              | <table><tr><td><math>x</math></td><td><math>0^\circ</math></td><td><math>22.5^\circ</math></td><td><math>45^\circ</math></td><td><math>67.5^\circ</math></td><td><math>90^\circ</math></td><td><math>112.5^\circ</math></td><td><math>135^\circ</math></td><td><math>157.5^\circ</math></td><td><math>180^\circ</math></td></tr><tr><td><math>y</math></td><td>-2</td><td>-1.12</td><td>1</td><td>3.12</td><td>4</td><td>3.12</td><td>1</td><td>-1.12</td><td>-2</td></tr></table> |           |              |            |              |            |               |             | $x$           | $0^\circ$    | $22.5^\circ$ | $45^\circ$ | $67.5^\circ$ | $90^\circ$ | $112.5^\circ$ | $135^\circ$ | $157.5^\circ$ | $180^\circ$ | $y$ | -2 | -1.12 | 1 | 3.12 | 4 | 3.12 | 1 | -1.12 | -2 |  |  |
|     |                                                  | $x$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | $0^\circ$ | $22.5^\circ$ | $45^\circ$ | $67.5^\circ$ | $90^\circ$ | $112.5^\circ$ | $135^\circ$ | $157.5^\circ$ | $180^\circ$  |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
|     | $y$                                              | -2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -1.12     | 1            | 3.12       | 4            | 3.12       | 1             | -1.12       | -2            |              |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
|     | Semua betul                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |              |            |              |            |               | N1          |               |              |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
| (b) | Bentuk graf kos $x$ (paksi menggunakan pembaris) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |              |            |              |            |               | P1          |               |              |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
|     |                                                  | Graf negatif kos dan 1 titik betul                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |              |            |              |            |               |             | N1            |              |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |
|     |                                                  | Graf negatif kos, skala tepat dan semua titik betul                                                                                                                                                                                                                                                                                                                                                                                                                                |           |              |            |              |            |               |             | N1            | 4            |              |            |              |            |               |             |               |             |     |    |       |   |      |   |      |   |       |    |  |  |



[illegible]

| No |         | Peraturan Pemarkahan                                                                                                                                                                        | Markah                 | Markah Penuh |
|----|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|
| 13 | (a) (i) | $T_7 = 3(2)^{7-1}$<br><br>192                                                                                                                                                               | K1<br><br>N1           |              |
|    | (ii)    | $S_5 = \frac{3(2^5 - 1)}{2 - 1}$<br><br>$S_5 + T_6 + T_7$<br><br>$\frac{3(2^5 - 1)}{2 - 1} \{ +0 \} + 3$<br><br>96                                                                          | K1<br><br>K1<br><br>N1 |              |
|    | (b)     | $\frac{3(2^n - 1)}{2 - 1} \geq 10000$<br><br>$n = 12$<br><br>Nota: $n \geq \frac{\log_{10} \left( \frac{10003}{3} \right)}{\log_{10} 2}$ mesti ditunjukkan. Jika tidak beri K1N0.<br><br>14 | K1<br><br>N1<br><br>N1 |              |
|    |         |                                                                                                                                                                                             |                        |              |

| No | Peraturan Pemarkahan                                                                        | Markah | Markah Penuh |
|----|---------------------------------------------------------------------------------------------|--------|--------------|
| 14 | (a) (i) $5(m+2)+4=\frac{1}{2}[-8(-7)-3]$<br>$\frac{5}{2}$                                   | K1     |              |
|    |                                                                                             | N1     |              |
|    | (ii) $g^{-1}(x)=\frac{-x-3}{8}$                                                             | K1     |              |
|    | $-\left(\frac{-x-3}{8}\right)-3$<br>$\frac{x-21}{64}$                                       | N1     |              |
|    |                                                                                             | N1     |              |
|    | (b) (i)  |        |              |
|    | Graf berbentuk V                                                                            | N1     |              |
|    | Graf melalui titik- titik $(-3,21)$ , $(6,15)$ dan $\left(\frac{9}{4},0\right)$             | N1     |              |
|    | (ii) Objek tidak wujud kerana julat $f(x) > 0$                                              | N1     |              |

| No |         | Peraturan Pemarkahan                                                                                                                                                                                                                                                               | Markah | Markah Penuh |
|----|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|
| 15 | (a)     | <p>Guna prinsip pertama sehingga <math>\frac{\delta y}{\delta x}</math></p> $\frac{\delta y}{\delta x} = \frac{-4}{x^2 + x\delta x}$<br>$\frac{dy}{dx} = -\frac{4}{x^2}$                                                                                                           | K1     |              |
|    |         |                                                                                                                                                                                                                                                                                    | N1     |              |
|    | (b) (i) | <p>Cari nilai <math>m_1</math></p> $\frac{3 - (-1)}{1 - 0}$<br><p>Guna <math>*m_1 \times m_2 = -1</math></p> $*4 \times m_2 = -1$<br>$-\frac{4}{x^2} = * \left( -\frac{1}{4} \right) \text{ dan selesaikan untuk } x$<br>$(4, 1)$                                                  | K1     |              |
|    |         |                                                                                                                                                                                                                                                                                    | K1     |              |
|    |         |                                                                                                                                                                                                                                                                                    | K1     |              |
|    |         |                                                                                                                                                                                                                                                                                    | N1     |              |
|    | (ii)    | $y - *(1) = * \left( -\frac{1}{4} \right) (x - *4) \text{ OR}$ <p>Ganti nilai <math>*m</math>, nilai <math>*x</math> dan nilai <math>*y</math> ke dalam <math>*y = *m *x + c</math><br/>DAN selesaikan untuk <math>c</math></p><br>$y = -\frac{1}{4}x + 2 \text{ // } 4y = -x + 8$ | K1     | 8            |
|    |         |                                                                                                                                                                                                                                                                                    | N1     |              |

PERATURAN PEMARKAHAN TAMAT

Soalan 10

