

3472/1

MATEMATIK

TAMBAHAN

KERTAS 1

2 JAM

MODUL KECEMERLANGAN SOLAN GEMPUR JPN PERAK 2024

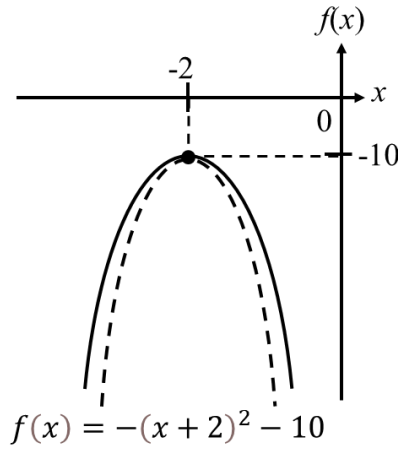
TINGKATAN 5

SET 1

## MATEMATIK TAMBAHAN

KERTAS 1

## SKEMA JAWAPAN

| NO.    | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MARKAH                              | JUMLAH   |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------|
| 1      | <p>Lakaran Graf-Graf dilukis pada sukuan 3</p>  <p><math>f(x) = -(x + 2)^2 - 10</math></p> <p><b>Generalisasi:</b><br/> Kelebaran Graf:<br/> - Apabila <math>a = -2</math> berubah kepada <math>a = -1</math>, <b>kelebaran graf akan bertambah.</b></p> <p><b>Paksi Simetri:</b><br/> - Apabila <math>h = 4</math> berubah kepada <math>h = -2</math>, paksi simetri akan berubah dari <math>x = 4</math> kepada <math>x = -2</math> dan <b>graf akan bergerak ke kiri sebanyak 6 unit.</b></p> <p><b>Bentuk Graf:</b><br/> - Apabila <math>k = 6</math> berubah kepada <math>k = -10</math>, <b>graf akan bergerak ke bawah sebanyak 16 unit.</b></p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> | <p>4</p> |
| JUMLAH |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     | 4        |

| NO.           | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MARKAH                                          | JUMLAH   |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------|
| 2             | <p>(a) <math>a, ar, ar^2, ar^3, \dots, ar^{n-2}, ar^{n-1}</math></p> <p>Hasil tambah n sebutan pertama ialah <math>S_n</math>.</p> <p>Maka, <math>S_n = a + ar + ar^2 + ar^3 + \dots + ar^{n-2} + ar^{n-1} \dots (1)</math></p> <p><math>(1) \times r: rS_n = ar + ar^2 + ar^3 + ar^4 + \dots + ar^{n-1} + ar^n \dots (2)</math></p> <p><math>(1) - (2): S_n = a + ar + ar^2 + ar^3 + \dots + ar^{n-2} + ar^{n-1}</math></p> $S_n - rS_n = a - ar^n$ $S_n(1 - r) = a(1 - r^n)$ $S_n = \frac{a(1 - r^n)}{1 - r}, r \neq 1$          | <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> | <b>3</b> |
|               | <p>(b) <math>a + ar + ar^2 = 7ar^2</math></p> <p><math>29 + 29r + 29r^2 = 7(29)r^2</math> <b>Dan</b></p> <p><b>selesaikan persamaan kuadratik</b></p> <p><math>0 = 174r^2 - 29r - 29</math></p> <p><math>0 = 6r^2 - r - 1</math></p> <p><math>0 = (3r + 1)(2r - 1)</math></p> <p><math>3r - 1 = 0, \quad 2r - 1</math></p> <p><math>r = \frac{-1}{3}, \text{ abaikan }, \quad r = \frac{1}{2}</math></p> <p><math>\therefore</math> jisim murid kedua terbesar ialah <math>29\left(\frac{1}{2}\right) = 14.5 \text{ kg}</math></p> | <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> | <b>3</b> |
| <b>JUMLAH</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                 | <b>6</b> |

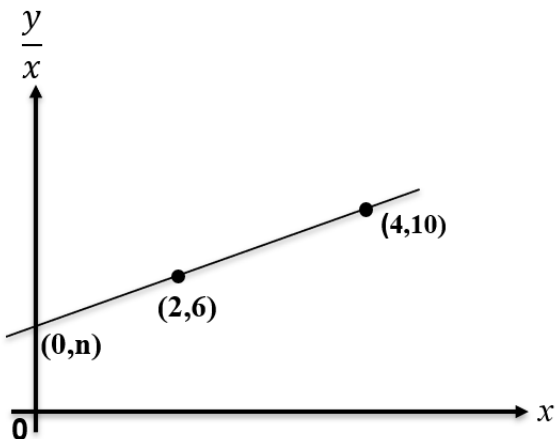
| NO.    | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MARKAH                     | JUMLAH |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|
| 3      | <p>(a)</p> $y = f(x) = \sqrt{x}$ $\delta y = f(x + \delta x) - f(x)$ $= \sqrt{(x + \delta x)} - \sqrt{x} \times \frac{\sqrt{(x + \delta x)} + \sqrt{x}}{\sqrt{(x + \delta x)} + \sqrt{x}}$ $= \frac{x + \delta x - x}{\sqrt{(x + \delta x)} + \sqrt{x}}$ $\delta y = \frac{\delta x}{\sqrt{(x + \delta x)} + \sqrt{x}}$ $\frac{\delta y}{\delta x} = \frac{\delta x}{\sqrt{(x + \delta x)} + \sqrt{x}} \times \frac{1}{\delta x}$ $\frac{dy}{dx} = \lim_{\delta x \rightarrow 0} \frac{\delta y}{\delta x}$ $\frac{dy}{dx} = \lim_{\delta x \rightarrow 0} \frac{1}{\sqrt{(x + \delta x)} + \sqrt{x}} \quad \text{Dan}$ $\frac{dy}{dx} = \frac{1}{\sqrt{(x + 0)} + \sqrt{x}}$ $\frac{dy}{dx} = \frac{1}{2\sqrt{x}}$ | <p>1</p> <p>1</p> <p>1</p> | 3      |
|        | <p>(b)</p> <p>Katakan <math>u = 2x</math>, <math>v = 6 - x</math></p> $\frac{du}{dx} = 2 \quad \text{Dan}$ $\frac{dv}{dx} = -1$ $\frac{dy}{dx} = \frac{(6 - x)(2) - (2x)(-1)}{(6 - x)^2}$ $\frac{dy}{dx} = \frac{12}{(6 - x)^2}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>1</p> <p>1</p> <p>1</p> | 3      |
| JUMLAH |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            | 6      |

| NO            | BUTIRAN |                                                                                                                                                                                      |                                                                                                                                                                                        | MARKAH | JUMLAH   |
|---------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|
| 4             | (a)     | $1000 = 500.e^{10r}$ <b>Dan selesaikan r</b><br>$2 = e^{10r}$<br>$\ln 2 = \ln e^{10r}$<br>$\ln 2 = 10r$<br>$r = \frac{\ln 2}{10}$<br>$r = \frac{\ln 2}{10} \times 100$<br>$6.9315\%$ |                                                                                                                                                                                        | 1      | 2        |
|               | (b)     | (i)                                                                                                                                                                                  | $1400 = 500e^{0.05t}$<br>$\ln 2.8 = 0.05t$<br>$20.59$<br>Therefore, it will take approximately 20.59 years for the amount of teak wood to exceed 1400 kg with a 5% annual growth rate. | 1      | 2        |
|               |         | (ii)                                                                                                                                                                                 | $K(15) = 500e^{0.05 \times 15}$<br>$= 1058.5kg$                                                                                                                                        | 1      | 2        |
| <b>JUMLAH</b> |         |                                                                                                                                                                                      |                                                                                                                                                                                        |        | <b>6</b> |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO.    | BUTIRAN |                                              |                                                                                                                                                                                                              | MARKAH     | JUMLAH |
|--------|---------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------|
| 5      | (a)     | (i)                                          | $f$ mempunyai fungsi songsang kerana fungsi tersebut ialah fungsi satu dengan satu.                                                                                                                          | 1          | 3      |
|        |         | (ii)                                         | Fungsi $f$ mempunyai fungsi songsang kerana apabila ujian garis mengufuk dilakukan, garis mengufuk memotong graf $f$ hanya pada satu titik. Ini bermaksud jenis fungsi $f$ ini ialah fungsi satu dengan satu | 1          |        |
|        |         | (iii)                                        | Fungsi $f$ tidak mempunyai fungsi songsang kerana fungsi tersebut bukan fungsi satu dengan satu                                                                                                              | 1          |        |
|        | (b)     | Tidak<br><br>Sebab $kh(n) \neq hk(n) \neq n$ |                                                                                                                                                                                                              | 1<br><br>1 | 2      |
| JUMLAH |         |                                              |                                                                                                                                                                                                              |            | 5      |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO.    | BUTIRAN                                                                                                                                                                                                                                                                                                   | MARKAH                     | JUMLAH |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|
| 6      | <p>(a)</p> <p>-Graf garis lurus <math>\frac{y}{x}</math> melawan <math>x</math> dilukis dengan koordinat <math>(2, \frac{12}{2})</math> Dan <math>(2, \frac{40}{4})</math></p> <p>-Lakaran graf dengan paksi lurus</p>  | <p>1</p> <p>1</p> <p>1</p> | 3      |
|        | <p>(b)</p> <p><math>m = \frac{10-6}{4-2}</math> atau setara Dan banding</p> <p><math>\frac{6-n}{2-0} = 2</math></p> <p><math>n = 2</math></p>                                                                                                                                                             | <p>1</p> <p>1</p>          | 2      |
| JUMLAH |                                                                                                                                                                                                                                                                                                           |                            | 5      |

**SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)**

| NO.           | BUTIRAN                                                                                                                                                                                                                                                                        | MARKAH                        | JUMLAH   |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------|
| 7             | (a) $\sqrt{(x-1)^2 + (y-2)^2} = 2$<br>$x^2 - 2x + 1 + y^2 - 4y + 4 = 4$<br>$x^2 + y^2 - 2x - 4y + 1 = 0$                                                                                                                                                                       | 1<br><br>1                    | 2        |
|               | (b) $y = 3 - 2x$<br>$x^2 + (3 - 2x)^2 - 2x - 4(3 - 2x) + 1 = 0$<br>$x^2 + 9 - 12x + 4x^2 - 2x - 12 + 8x + 1 = 0$<br>$5x^2 - 6x - 2 = 0$<br>$b^2 - 4ac = (-6)^2 - 4(5)(-2)$<br>$= 76 > 0$ <b>Dan</b><br>Tidak boleh kerana laluan refleksologi akan memintas pagar yang dibina. | 1<br>1<br><br>1<br>1<br><br>1 | 5        |
| <b>JUMLAH</b> |                                                                                                                                                                                                                                                                                |                               | <b>7</b> |

**SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)**

| NO. | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                     | MARKAH                              | JUMLAH |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------|
| 8   | <p>Daya Paduan = <math>v + a</math></p> $\begin{pmatrix} 2.3 \\ 1.4 \end{pmatrix} + \begin{pmatrix} 0.6 \\ -2.0 \end{pmatrix} = \begin{pmatrix} 2.9 \\ -0.6 \end{pmatrix}$ <p>Magnitude = <math>\sqrt{x^2 + y^2}</math></p> $\sqrt{(2.9)^2 + (-0.6)^2}$ <p><math>2.961 \text{ kmj}^{-1}</math></p> $\tan \theta = \frac{0.6}{2.9}$ <p><math>\theta = 11.69^\circ</math></p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> | 4      |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO.           | BUTIRAN                                                                                                                                                         | MARKAH                     | JUMLAH   |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------|
| 9             | <p>(a) <math>(11 - 1)!</math> or <math>(9 - 1)!</math> is seen</p> <p><math>(10)! - (8! \times 3!)</math></p> <p>3386880</p>                                    | <p>1</p> <p>1</p> <p>1</p> | 3        |
|               | <p>(b) <math>{}^6C_2</math> or <math>{}^6C_4</math> is seen</p> <p><math>{}^6C_2 \times {}^4C_4 \times 2</math> OR <math>{}^6C_2 + {}^6C_4</math></p> <p>30</p> | <p>1</p> <p>1</p> <p>1</p> | 3        |
| <b>JUMLAH</b> |                                                                                                                                                                 |                            | <b>6</b> |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO                                   | BUTIRAN |                                                                                                                                                                                                                                                                                                                                                                                                       |         |      |        |   | MARKAH | JUMLAH |                                      |        |      |       |      |        |   |   |
|--------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|--------|---|--------|--------|--------------------------------------|--------|------|-------|------|--------|---|---|
| 10                                   | (a)     | <table><tr><td><math>X = r</math></td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Kebarangkalian<br/><i>Probability</i></td><td>0.0625</td><td>0.25</td><td>0.375</td><td>0.25</td><td>0.0625</td></tr></table> <div><p>Jadual 10/Table 10</p><p>Shape of binomial graph<br/>The horizontal and vertical axes are completely labeled<br/>Must use ruler to draw the line</p></div> | $X = r$ | 0    | 1      | 2 | 3      | 4      | Kebarangkalian<br><i>Probability</i> | 0.0625 | 0.25 | 0.375 | 0.25 | 0.0625 | 1 | 3 |
| $X = r$                              | 0       | 1                                                                                                                                                                                                                                                                                                                                                                                                     | 2       | 3    | 4      |   |        |        |                                      |        |      |       |      |        |   |   |
| Kebarangkalian<br><i>Probability</i> | 0.0625  | 0.25                                                                                                                                                                                                                                                                                                                                                                                                  | 0.375   | 0.25 | 0.0625 |   |        |        |                                      |        |      |       |      |        |   |   |
|                                      |         |                                                                                                                                                                                                                                                                                                                                                                                                       | 1<br>1  |      |        |   |        |        |                                      |        |      |       |      |        |   |   |



|        |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |
|--------|-----|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 10     | (b) | (i)   | Definisi Taburan Normal Piawai:<br><br>Taburan normal piawai adalah taburan normal yang mempunyai min $\mu = 0$ dan sisihan piawai $\sigma = 1$ . Bentuk graf taburan normal piawai adalah simetri dengan bentuk loceng, di mana puncaknya berada di min $\mu = 0$ .<br><i>A standard normal distribution is a normal distribution with a mean <math>\mu = 0</math> and a standard deviation <math>\sigma = 1</math>. The shape of the standard normal distribution graph is symmetrical with a bell shape, where its peak is at the mean <math>\mu = 0</math> .</i>    | 1 | 3 |
|        |     | (ii)  | $Z = \frac{130 - 100}{15} = 2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 |   |
|        |     | (iii) | Z -skor sebanyak 2 bermaksud bahawa skor IQ 130 adalah 2 sisihan piawai di atas min. Dalam konteks taburan normal piawai, ini menunjukkan bahawa skor IQ tersebut adalah lebih tinggi daripada kebanyakan orang, kerana ia berada pada hujung kanan graf taburan normal<br><br><i>A Z -score of 2 means that an IQ score of 130 is 2 standard deviations above the mean. In the context of the standard normal distribution, this indicates that the IQ score is higher than the majority of scores, as it lies on the right tail of the normal distribution graph.</i> | 1 |   |
| JUMLAH |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   | 6 |

| NO. | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                                                   | MARKAH                     | JUMLAH |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|
| 11  | $\tan x = \frac{1}{h}$ dan $\tan y = -\frac{2}{h}$<br>$\tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$<br>$= \frac{\frac{1}{h} + \left(-\frac{2}{h}\right)}{1 - \left(\frac{1}{h}\right)\left(-\frac{2}{h}\right)}$<br>$= \frac{-\frac{1}{h}}{1 + \frac{2}{h^2}}$<br>$= \frac{-\frac{1}{h}}{\frac{h^2 + 2}{h^2}}$<br>$= -\frac{1}{h} \left( \frac{h^2}{h^2 + 2} \right)$<br>$= -\frac{h}{h^2 + 2}$ | <p>1</p> <p>1</p> <p>1</p> | 3      |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO. | BUTIRAN                                                                                                                                                                                                                                                                                                                                                                                         | MARKAH                                       | JUMLAH |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------|
| 12  | $\frac{dy}{dx} = ax + b$<br>Pada titik $(-2, 7)$ , $\frac{dy}{dx} = -8$<br>$a(-2) + b = -8$<br>$-2a + b = -8 \dots (1)$<br><br>Pada titik $(0, 5)$ , $\frac{dy}{dx} = 6$<br>$a(0) + b = 6$<br>$b = 6$<br>Gantikan $b = 6$ ke dalam $(1)$ ,<br>$-2a + 6 = -8$<br>$-2a = -14$<br>$a = 7$<br>$y = \frac{7x^2}{2} + 6x + c$<br>$5 = \frac{7(0)^2}{2} + 6(0) + c$ atau setara Dan selesaikan untuk c | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> | 6      |

|  |                               |   |  |
|--|-------------------------------|---|--|
|  | $y = \frac{7x^2}{2} + 6x + 5$ | 1 |  |
|--|-------------------------------|---|--|

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO.           | BUTIRAN                                                                                                                                                                                                                                                            | MARKAH                    | JUMLAH   |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|
| 13            | (a) $AP = \sqrt{15^2 - 9^2}$ <b>Dan</b><br>$PB = AB - AP = 3$ , AP dan PB boleh tersirat pada rajah<br>$\angle ABC = \tan^{-1}\left(\frac{9}{3}\right)$<br>$\angle ABC = 1.249 \text{ rad}$                                                                        | 1<br><br>1<br>1           | 3        |
|               | (b) $r = \sqrt{9^2 + 3^2}$<br>$r = 9.487$<br>$s = 9.487 \times 1.249$ <b>Dan</b> $\frac{1}{2} (9.487)^2 (1.249)$<br>$Perimeter = 11.85 + (9.487 - 3) + 9$<br>$Perimeter = 27.337$<br>$Luas = 56.21 - \left(\frac{1}{2} \times 9 \times 3\right)$<br>$Luas = 42.71$ | 1<br><br>1<br>1<br>1<br>1 | 5        |
| <b>JUMLAH</b> |                                                                                                                                                                                                                                                                    |                           | <b>8</b> |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO. | BUTIRAN                                                                                                                                                                                                                                                                                           | MARKAH                              | JUMLAH |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------|
| 14  | (a) $25^{m+1} - 5^{2m}$<br>$= (5^2)^{m+1} - 5^{2m}$<br>$= 5^{2m+2} - 5^{2m}$<br>$= 5^{2m} (5^2) - 5^{2m}$<br>$= 5^{2m} (5^2 - 1)$<br>$= 24(5^{2m})$<br>$= 24(25^m)$<br>Oleh kerana 24 ialah gandaan bagi 4, maka $25^{m+1} - 5^{2m}$ boleh dibahagi oleh 4 bagi semua nilai integer positif $m$ . | 1<br><br><br><br><br><br>1<br><br>1 | 3      |
|     | (b) $2 + 3\sqrt{h}$<br>$(8 - 2\sqrt{h})^2 + (2 + 3\sqrt{h})^2 = 68^2$<br>$64 - 32\sqrt{h} + 4h + 4 + 12\sqrt{h} + 9h = 68$<br>$13h - 20\sqrt{h} = 0$                                                                                                                                              | 1<br><br>1<br>1                     | 5      |

|  |                                                                                                                                                                                                                        |          |          |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|
|  | $13h - 20\sqrt{h} = 0$ <p style="text-align: center;"><b>Dan selesaikan</b></p> $\sqrt{h}(13\sqrt{h} - 20) = 0$ $\sqrt{h} = 0 \quad , \quad \sqrt{h} = \frac{20}{13}$ $h = 0 \quad , \quad h = \frac{400}{169} / 2.37$ | <b>1</b> |          |
|  | <b>JUMLAH</b>                                                                                                                                                                                                          |          | <b>8</b> |

SOALAN GEMPUR JPN PERAK 2024 ( KERTAS 1)

| NO                            | BUTIRAN                                                                                      |   |                 |                 |                  |       |                  |                  |                  |        | MARKAH | JUMLAH |
|-------------------------------|----------------------------------------------------------------------------------------------|---|-----------------|-----------------|------------------|-------|------------------|------------------|------------------|--------|--------|--------|
| 15                            |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| (a)                           | $x$                                                                                          | 0 | $\frac{\pi}{4}$ | $\frac{\pi}{2}$ | $\frac{3\pi}{4}$ | $\pi$ | $\frac{5\pi}{4}$ | $\frac{3\pi}{2}$ | $\frac{7\pi}{4}$ | $2\pi$ | 2      | 8      |
|                               | $y$                                                                                          | 0 | 1               | 2               | 1                | 0     | 1                | 2                | 1                | 0      |        |        |
|                               |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| <div>2 Semua betul</div>      |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| <div>1 Salah maksimum 2</div> |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| <div>N Salah 3 ke atas</div>  |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
|                               |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| (b)                           | Rujuk graf                                                                                   |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| (c)                           | $y = 2 - \frac{x}{\pi}$                                                                      |   |                 |                 |                  |       |                  |                  |                  |        | 1      |        |
|                               | Lukis garis lurus yang melibatkan $x$ dan $y$ dengan kecerunan atau pintasan- $y$ yang betul |   |                 |                 |                  |       |                  |                  |                  |        | 1      |        |
|                               | 0.32 $\pi$ $\leftrightarrow$ 0.38 $\pi$                                                      |   |                 |                 |                  |       |                  |                  |                  |        | 1      |        |
|                               | 0.66 $\pi$ $\leftrightarrow$ 0.72 $\pi$                                                      |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
|                               | 1.18 $\pi$ $\leftrightarrow$ 1.24 $\pi$                                                      |   |                 |                 |                  |       |                  |                  |                  |        |        |        |
| 2 $\pi$                       |                                                                                              |   |                 |                 |                  |       |                  |                  |                  |        |        |        |

## GRAF NO 15(b)

Plot  $y$  melawan  $x$ 

- Paksi -paksi betul dan skala seragam dari titik pertama sehingga titik terakhir.
- Sekurang-kurangnya satu titik diplot betul
- 9 titik diplot betul

K1

N1

Lukis graf  $\cos$  untuk DAN lengkung licin DAN titik-titik bersambung

N1

