

**MODUL PERKEMBANGAN PEMBELAJARAN  
MPP3 TAHUN 2023 TINGKATAN 5**

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**MATEMATIK TAMBAHAN**

**3472/1**

**Kertas 1**

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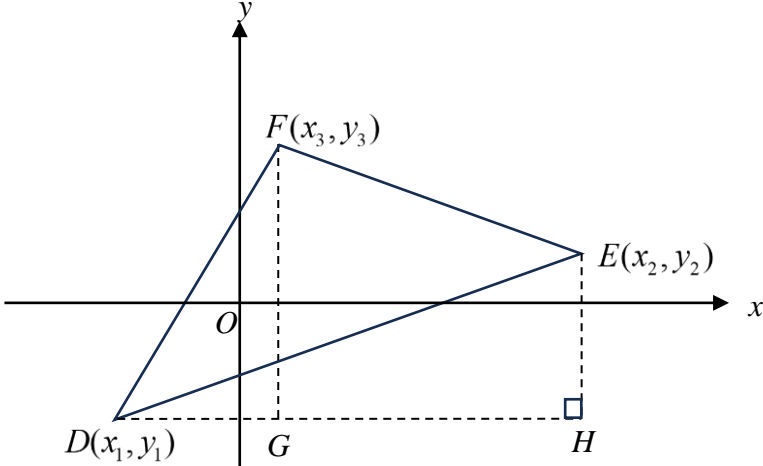
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**PERATURAN PEMARKAHAN**

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3	<p>(a) 0.001447 [Panduan : <math>{}^{10}C_2 (0.7)^2 (0.3)^{10-2}</math>] N1</p> <p>(b) Tulis <math>1 - P(X=0) - P(X=1)</math>  @ <math>P(X=2)+P(X=3)+\dots+P(X=10)</math> P1</p> <p><math>1 - {}^{10}C_0 (0.3)^0 (0.7)^{10} - {}^{10}C_1 (0.3)^1 (0.7)^9</math>  @ setara K1</p> <p>0.8507 N1</p>	4
4	<p>(a) Guna : <math>\log_a b = \frac{\log_c a}{\log_c b}</math> K1</p> <p><math>b = \frac{a^2}{81}</math> N1</p> <p>(b) Guna : <math>a^m \times a^n = a^{m+n}</math> ATAU <math>a^m \div a^n = a^{m-n}</math> K1  <math>3^{m-1}</math> N1</p>	4
5	<p><math>ar^{5-1} = 9(ar^{3-1})</math> K1</p> <p><math>r = 3</math> N1</p> <p><math>S_6 = \frac{a(3^6 - 1)}{3 - 1}</math> @ <math>S_3 = \frac{a(3^3 - 1)}{3 - 1}</math> K1</p> <p><math>S_6 = 28S_3</math> N1</p>	4
6	<p><math>\frac{1}{y} = \frac{k}{h} + \frac{3}{h} \left( \frac{1}{x} \right)</math> P1</p> <p><math>\frac{3}{h} = \frac{4}{5}</math> K1</p> <p><math>\frac{h(4)}{k(4)+3} = 1</math> K1</p> <p><math>h = \frac{15}{4}</math> dan <math>k = 3</math> N1</p>	4

7	<p>Hapus anu pertama dengan kaedah penggantian @ penghapusan  Hapus anu kedua dengan kaedah penggantian @ penghapusan</p> <p><math>x = 80 @ y = 30 @ z = 10</math>  <math>x = 80 @ y = 30 @ z = 10</math>  <math>x = 80 \text{ dan } y = 30 \text{ dan } z = 10</math></p>	<p>K1  K1  N1  N1  N1</p> <p style="text-align: center;"><b>5</b></p>
8	<p>(a)</p>  <p>Luas <math>\triangle DEF = \text{Luas } \triangle DFG + \text{Luas trapezium } EFGH - \text{Luas } \triangle DEH</math></p> $= \left( \frac{1}{2} \times DG \times FG \right) @ \left[ \frac{1}{2} \times GH \times (EH + FG) \right] @ \left( \frac{1}{2} \times DH \times EH \right) \quad \mathbf{K1}$ $= \frac{1}{2} (x_3 - x_1)(y_3 - y_1) + \frac{1}{2} (x_2 - x_3)[(y_2 - y_1) + (y_3 - y_1)] - \frac{1}{2} (x_2 - x_1)(y_2 - y_1) \quad \mathbf{K1}$ $= \frac{1}{2}  (x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)  \quad \mathbf{N1}$ <p>(b) <math>\frac{1}{2} [ [(-6)(5) + 10(8) + 1(-5)] - [(-5)(10) + 5(1) + 8(-6)] ]</math> <span style="float: right;"><b>K1</b></span></p> <p style="text-align: center;">69 <span style="float: right;"><b>N1</b></span></p>	<p style="text-align: center;"><b>5</b></p>

<p><b>9</b></p>	<p>(a) (i) 7  (ii) <math>a^2 - 8a + 7 = -5</math> dan <math>(a - 6)(a - 2) = 0</math>  <math>a = 2, 6</math></p> <p>(b) <math>\delta y = [(x + \delta x)^2 - 8(x + \delta x) + 7] - [x^2 - 8x + 7]</math> atau setara  <i>(<math>\delta y</math> dan ganti <math>[x^2 - 8x + 7]</math>)</i></p> <p><math>\frac{dy}{dx} = \underset{\delta x \rightarrow 0}{had} 2x + \delta x - 8</math> dan <math>\frac{dy}{dx} = 2x + 0 - 8</math></p> <p><math>\frac{dy}{dx} = 2x - 8</math></p>	<p>N1  K1  N1  K1  N1</p> <p style="text-align: center;"><b>6</b></p>
<p><b>10</b></p>	<p>(a) (i) <math>{}^{12}C_4 \times {}^8C_4 \times {}^4C_4</math>  34650</p> <p>(ii) <math>{}^{12}C_7 \times {}^5C_4 \times {}^1C_1</math>  3960</p> <p>(b) (i) <math>59 \times 58 = 3422</math></p> <p>(ii) <math>21 \times 4 \times 4 \times 62 \times 62</math> atau setara  1291584</p>	<p>K1  N1  K1  N1  N1  K1 K1  N1</p> <p style="text-align: center;"><b>8</b></p>

<p><b>11</b></p>	<p>(a) <math>(3x-2)(x+1) &lt; 0</math> atau setara</p> <p style="text-align: center;"><b>&amp;</b></p> <p>Mencari ketaksamaan dengan kaedah Graf @ Jadual @ Garis Nombor</p> <p style="text-align: center;"><math>-1 &lt; x &lt; \frac{2}{3}</math></p> <p>(b) <math>-3 \left[ x^2 + \frac{1}{3}x + \left(\frac{1}{2}\right)^2 - \left(\frac{1}{2}\right)^2 - \frac{2}{3} \right]</math> atau setara</p> <p style="text-align: center;"><math>-3 \left( x + \frac{1}{6} \right)^2 + \frac{25}{12}</math></p> <p style="text-align: center;">Nilai maksimum = <math>\frac{25}{12}</math></p> <p>(c) (i) <math>\alpha + \beta = \frac{-m-1}{3}</math></p> <p>(ii) <math>\frac{1}{\alpha} + \frac{1}{\beta} = -k</math>      <b>&amp;</b>      <math>\frac{1}{\alpha} \left( \frac{1}{\beta} \right) = k - 14</math></p> <p>Mencari *<math>k</math> dalam sebutan <math>m</math> dan <math>n</math>.</p> <p>[Panduan <math>\frac{-m-1}{n-2} = \frac{-14m-25}{n-2}</math>]</p> <p style="text-align: center;"><math>m = 14n - 26</math></p>	<p style="text-align: center;">K1</p> <p style="text-align: center;">N1</p> <p style="text-align: center;">K1</p> <p style="text-align: center;">K1</p> <p style="text-align: center;">N1</p> <p style="text-align: center;">N1</p> <p style="text-align: center;">K1</p> <p style="text-align: center;">K1</p> <p style="text-align: center;">K1</p> <p style="text-align: center;">N1</p> <p style="text-align: center;"><b>9</b></p>
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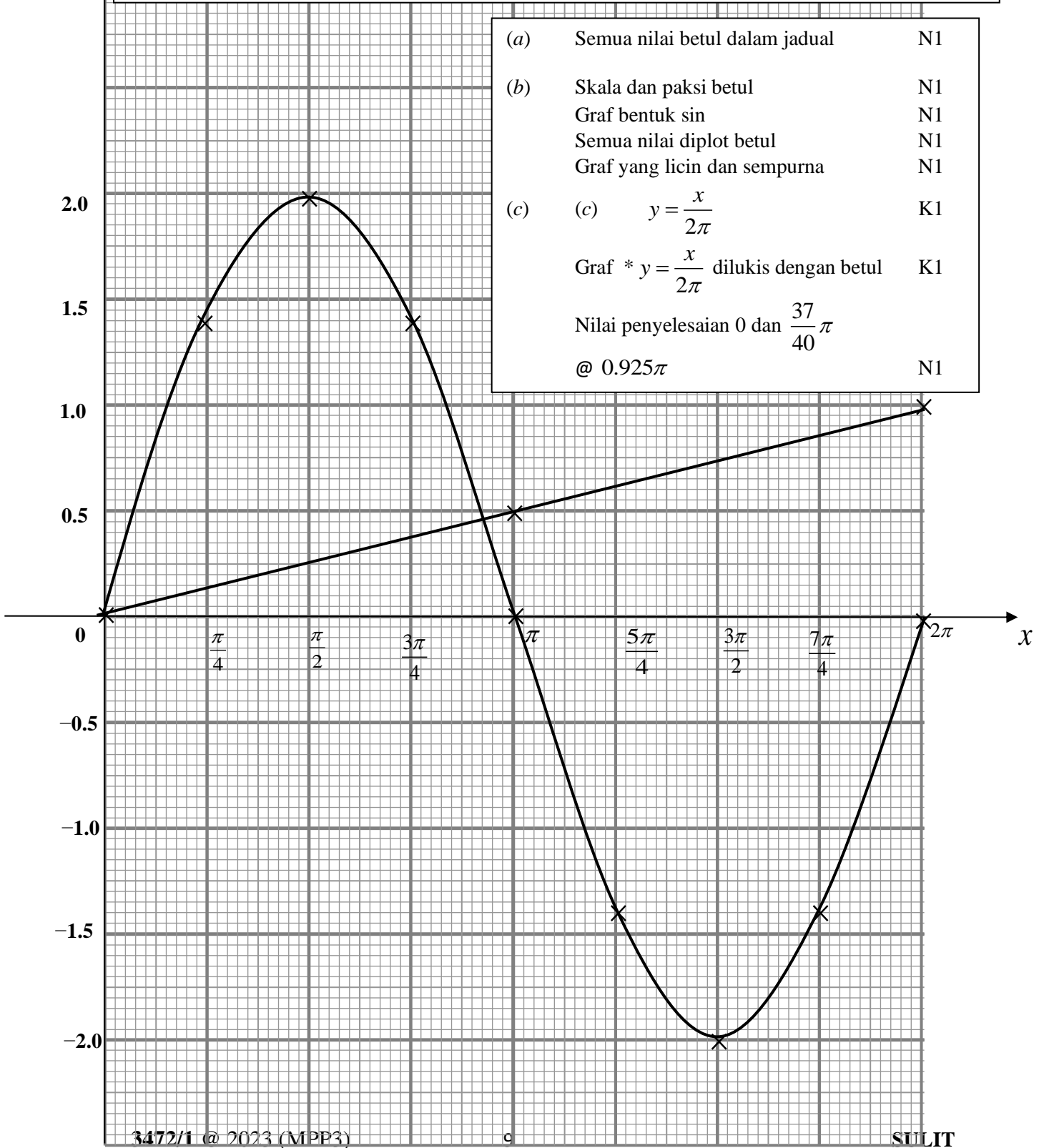
12	<p>(a) Bezakan <math>9 - x^2</math> terhadap <math>x</math> dan samakan dengan <math>-2</math>  <math>P(1,8)</math></p> <p>(b) mencari pintasan <math>-x</math>; <math>3</math> dan <math>5</math>  <math>\left(\frac{1}{2} \times 8 \times 4\right) @ \int_1^3 (9 - x^2) dx</math>  <math>\left(\frac{1}{2} \times 8 \times 4\right) - \int_1^3 (9 - x^2) dx</math>  <math>\frac{20}{3}</math></p> <p>(c) <math>9y - \frac{y^2}{2}</math>  <math>\pi \int_k^9 (9 - y) dy = 16\pi</math> dan selesaikan untuk mencari nilai <math>k</math>  <math>k = 3.343</math></p>	<p>K1 N1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p style="text-align: center;">9</p>
13	<p>(a) Tulis hukum segi tiga atau hukum poligon dalam (i) atau (ii)  <math>\overline{AD} = \overline{AB} + \overline{BC} + \overline{CD} @ \overline{QP} = \overline{QC} + \overline{CP}</math>  Guna hukum segi tiga atau hukum poligon dalam (i) atau (ii)  <math>6\tilde{x} + 8\tilde{y} + (-8\tilde{x}) @ (1 - \lambda)(-8\tilde{x}) + 6\tilde{y}</math></p> <p>(i) <math>-2\tilde{x} + 8\tilde{y}</math></p> <p>(ii) <math>(-8 + 8\lambda)\tilde{x} + 6\tilde{y}</math> [Panduan : <math>\overline{CP} = (1 - \lambda)\overline{CD}</math>]</p> <p>(b) <math>\overline{AD} = k\overline{QP}</math>  (guna apa-apa huruf @ simbol selain <math>\lambda</math>)  <math>-2\tilde{x} + 8\tilde{y} = k[(-8 + 8\lambda)\tilde{x} + 6\tilde{y}]</math>  Bandingkan : <math>-2 = (-8 + 8\lambda)k</math> &amp; <math>8 = 6k</math>  selesaikan persamaan serentak  <math>k = \frac{4}{3}</math> &amp; <math>\lambda = \frac{13}{16}</math></p>	<p>P1</p> <p>K1</p> <p>N1</p> <p>N1</p> <p style="text-align: center;">8</p> <p>K1</p> <p>K1</p> <p>K1</p> <p>N1</p>

<p><b>14</b></p>	$s = \frac{y}{2}\pi \quad @ \quad A = \frac{y}{8}\pi$ $2x + \frac{2y + y\pi}{2} = 80$ $xy + \frac{y^2}{8}\pi = 448$ $x = 40 - \left(\frac{2 + \pi}{4}\right)y$ $\left(40 - \left(\frac{2 + \pi}{4}\right)y\right)y + \frac{y^2}{8}\pi = 448$ $(5y - 112)(5y - 112) = 0$ $y = \frac{112}{5} \quad \text{atau setara}$ $x = \frac{56}{5} \quad \text{atau setara}$	<p>P1</p> <p>K1</p> <p>K1</p> <p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>N1</p> <p style="text-align: center;"><b>8</b></p>
<p><b>15</b></p>	<p>Rujuk Graf</p>	<p style="text-align: center;"><b>8</b></p>



No. 15

$x$	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	$\pi$	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	$2\pi$
$y$	0	1.41	2.00	1.41	0	-1.41	-2.00	-1.41	0



- (a) Semua nilai betul dalam jadual N1
- (b) Skala dan paksi betul N1  
 Graf bentuk sin N1  
 Semua nilai diplot betul N1  
 Graf yang licin dan sempurna N1
- (c) (c)  $y = \frac{x}{2\pi}$  K1  
 Graf \*  $y = \frac{x}{2\pi}$  dilukis dengan betul K1  
 Nilai penyelesaian 0 dan  $\frac{37}{40}\pi$   
 @  $0.925\pi$  N1