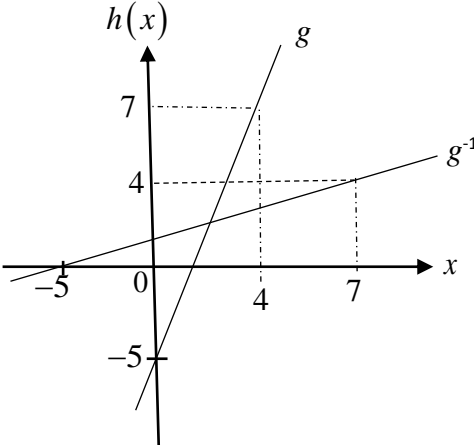


SKEMA PERMARKAH MATEMATIK TAMBAHAN KERTAS 1
PEPERIKSAAN PERTENGAHAN TAHUN TINGKATAN 5 2021

No	Skema Permarkahan	Σ Markah
1	<p>(a) $y = \frac{1}{2}(x-1)^2 + \frac{3p}{4}$ $p = -8$</p> <p>(b) $4y = 2(x-1)^2 + 3(-8)$ $(y+x) = \frac{1}{2}x^2 - \frac{11}{2}$ $m = \frac{1}{2}, c = -\frac{11}{2}$</p>	5
2	<p>(a) $m(x) = 3x+1$</p> <p>(b) (i) $3n(x)+1 = 10-3x^2$ $n(x) = 3-x^2$</p> <p>(ii) $3-k^2 = 6k-37$ $(k+10)(k-4) = 0$ $k = -10, k = 4$</p>	6

<p>3</p>	<p>(a)</p>  <p>P1 for g P1 for g^{-1}</p> <p>(b) $-5 \leq x \leq 7$</p> <p>(c) $3x - 5 = \frac{x + 5}{3}$</p> $x = \frac{5}{2}$	<p>5</p>
<p>4</p>	<p>(a) $k^2 - 4(3)(2)$ $k^2 - 24$</p> <p>(b) $2.5\alpha = -\frac{k}{3}$ atau $1.5\alpha^2 = \frac{2}{3}$ atau setara</p> $\left(\frac{-k}{7.5}\right)^2 = \frac{4}{9}$ <p>atau setara</p> $k = 5$	<p>K1 N1 K1 K1 N1</p> <p>5</p>

<p>5</p>	<p>(a) $T_{50} = 8 + (50 - 1)(3)$ $= 155$ $S_{50} = \frac{50}{2}(8 + *155)$ $= 4075$</p> <p>(b) $Length = \frac{19000}{200} = 95$ $8 + (n - 1)(3) = 95$ $n = 30$ Warna biru</p>	<p>K1 K1 N1 K1 N1 N1</p>	<p>6</p>
<p>6</p>	<p>(a) $3^{3x-2} = 5^{2x-1}$ $(3x - 2)\log_{10} 3 = (2x - 1)\log_{10} 5$ $x = 7.643$</p> <p>(b) $(1 + \sqrt{5})(x) = \sqrt{45}$ $x = \frac{\sqrt{45}}{1 + \sqrt{5}} \times \frac{1 - \sqrt{5}}{1 - \sqrt{5}}$ $= \frac{15}{4} - \frac{3}{4}\sqrt{5}$</p>	<p>K1 K1 N1 K1 N1</p>	<p>5</p>
<p>7</p>	<p>(a) $14 = 4 + \frac{k}{(-1)^3}$ $k = -10$</p> <p>(b) $y = 4x + 5x^{-2} + c$ $2 = 4(-1) + \frac{5}{(-1)^2} + c$ $y = 4x + \frac{5}{x^2} + 1$</p>	<p>K1 N1 K1 K1 N1</p>	<p>5</p>

<p>8</p>	<p>(a) $x + 2(2x + 6) = 20$ atau $\frac{y-6}{2} + 2y = 20$ K1</p> <p>$\left(\frac{8}{5}, \frac{46}{5}\right)$ N1</p> <p>(b) $\sqrt{\left(20 - \frac{8}{5}\right)^2 + \left(0 - \frac{46}{5}\right)^2}$ K1</p> <p>$40 = \frac{20.57}{\text{time}}$ K1</p> <p>$80 = \frac{s}{0.5143} \quad [t_p = t_q]$ K1</p> <p>41.14 N1</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>OR $y = 2(20) + 6$ K1</p> <p>P(20, 46) K1</p> <p>$\sqrt{\left(20 - \frac{8}{5}\right)^2 + \left(46 - \frac{46}{5}\right)^2}$ K1</p> <p>41.14 N1</p> </div>	<p style="text-align: center;">6</p>
<p>9</p>	<p>$\vec{PQ} = 3\begin{pmatrix} 3 \\ -2 \end{pmatrix} + k\begin{pmatrix} 8 \\ 4 \end{pmatrix}$ dan $\vec{PQ} = \begin{pmatrix} 10 \\ s \end{pmatrix} - \begin{pmatrix} t \\ 4 \end{pmatrix}$ K1</p> <p>$10 - t = 9 + 8k$ atau $s - 4 = -6 + 4k$ K1</p> <p>$k = \frac{1-t}{8}$ K1</p> <p>$s - 4 = -6 + 4\left(\frac{1-t}{8}\right)$ K1</p> <p>$s = \frac{-t-3}{2}$ N1</p>	<p style="text-align: center;">5</p>
<p>10</p>	<p>(a) $\lim_{n \rightarrow 8} \frac{(n+8)(n-8)}{n-8}$ K1</p> <p>16 N1</p> <p>(b) $y + \delta y = (x + \delta x)^2 - 3$ K1</p> <p>$\frac{\delta y}{\delta x} = 2x + \delta x$ K1</p> <p>$\lim_{\delta x \rightarrow 0} \frac{\delta y}{\delta x} = \lim_{\delta x \rightarrow 0} (2x + \delta x)$ K1</p> <p>$2x$ N1</p>	<p style="text-align: center;">6</p>

11	<p>(a) $2x^2y = 72$</p> $L = 4x^2 + \frac{216}{x}$ <p>(b) $\frac{dL}{dx} = 8x - \frac{216}{x^2}$</p> $\frac{dL}{dt} = \left(8(4) - \frac{216}{(4)^2} \right) \times (-0.2)$ $\frac{dL}{dt} = -3.7 \text{ cm}^2 \text{ s}^{-1}$	<p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>5</p>
12	<p>60° or 1.047</p> $A_1 = \frac{1}{2}(2j)^2 \sin 60 \text{ or } A_2 = \frac{1}{2}(j)^2 (1.047)$ $\frac{1}{2}(2j)^2 \sin 60 - 3 \left[\frac{1}{2}(j)^2 (1.047) \right]$ $\frac{1}{2}(2j)^2 \sin 60 - 3 \left[\frac{1}{2}(j)^2 (1.047) \right] = 10.35$ <p>$8.015 \leftrightarrow 8.018$</p>	<p>P1</p> <p>K1</p> <p>K1 ($A_1 - 3A_2$)</p> <p>K1</p> <p>N1</p>	<p>5</p>

13

(a) $\angle BCA = 1.274$ P1

$Perimeter = 11.11 + 11.11 + 11.11(1.274^*)$ K1

36.37 N1

(b) $\angle BCE = 73^\circ / 0.5935$ or $\angle DCE = 39^\circ / 0.6808$ P1

Luas Δ : $\Delta ABC = \frac{1}{2}(19)^2 \sin 34^\circ$ or $\Delta BCE = \frac{1}{2}(11.11)^2 \sin 34^\circ$

OR

Luas sektor :

$BCE = \frac{1}{2}(11.11)^2 \left(\frac{34}{180} \pi \right)$ or $DCE = \frac{1}{2}(11.11)^2 \left(\frac{39}{180} \pi \right)$ K1

Luas segment :

$\frac{1}{2}(11.11)^2 (0.5935) - \frac{1}{2}(11.11)^2 \sin 34$ or

$\frac{1}{2}(11.11)(19) \sin 39 - \frac{1}{2}(11.11)^2 (0.6808)$ or equivalent K1

$\left[\frac{1}{2}(11.11)^2 (0.5935) - \frac{1}{2}(11.11)^2 \sin 34 \right] +$

$\left[\frac{1}{2}(11.11)(19) \sin 39 - \frac{1}{2}(11.11)^2 (0.6808) \right]$ K1

26.48 \leftrightarrow 26.53 N1

8

<p>14</p>	<p>(a) $\frac{5(2+3x)^{-2}}{3(-2)} + c$</p> <p>$p = -\frac{5}{6}, n = -2$</p> <p>(b) (i) $\frac{x^2}{2x-1}$</p> <p>pengamiran adalah songsangan pembezaan</p> <p>(ii) $2 \left[\frac{x^2}{2x-1} \right]_0^3 + [-x^2 + 5x]_0^3$</p> <p>$2 \left(\left[\frac{3^2}{2(3)-1} \right] - \left[\frac{0^2}{2(0)-1} \right] \right) + \left([-(-3)^2 + 5(3)] - [-(0)^2 + 5(0)] \right)$</p> <p>$\frac{48}{5}$</p>	<p>K1</p> <p>N1N1</p> <p>P1</p> <p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p style="text-align: center;">8</p>
<p>15</p>	<p>(a) $T_2 = 12y^2$, $T_5 = \frac{81}{2}y^5$</p> <p>$\frac{ar^4}{ar} = \frac{81}{12}y^5$</p> <p>$r = \frac{3}{2}y$</p> <p>$a = 8y$</p> <p>(b) (i) $T_4 = 16(3^3)$</p> <p>$= 432$</p> <p>(ii) $\frac{16(3^n - 1)}{3 - 1} > 50000$</p> <p>$n \log 3 > \log 6251$</p> <p>$n > 7.956$</p> <p>$n = 8$</p>	<p>K1</p> <p>N1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p style="text-align: center;">8</p>