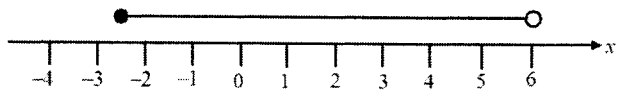
Ngee Ann Secondary School
Secondary 4&5 Mathematics-O
2025 Prelim Examinations Paper 1
Marking Scheme

1		[B1]
2	$-8x-9=6$ $-8x=15$ $x=-\frac{15}{8}$ or $-1\frac{7}{8}$ or -1.875	[B1; no mark for -1.88]
3	$2410\left(1+\frac{r}{100}\right)^6=2660$ $\left(1+\frac{r}{100}\right)^6=\frac{2660}{2410}$ $1+\frac{r}{100}=\left(\frac{2660}{2410}\right)^{\frac{1}{6}}$ $\frac{r}{100}=\left(\frac{2660}{2410}\right)^{\frac{1}{6}}-1$ $r=100\times\left[\left(\frac{2660}{2410}\right)^{\frac{1}{6}}-1\right]$ $r=100\times\left[\left(\frac{2660}{2410}\right)^{\frac{1}{6}}-1\right]$ $=1.66$ (3 s.f.)	[M1] [A1]
4(a)	0.0050500 (5 s.f.)	[B1]
4(b)	5.0500×10^{-3}	[B1; accept 5.05×10^{-3} and allow for ecf]
5	$600=2^3\times3\times5^2$ For the base area to be a square, possible dimensions are $2\times2\times150$, $5\times5\times24$ or $(2\times5)\times(2\times5)\times6$. Smallest possible height is 6 cm.	[M1] [A1]

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6(a)	$\frac{72}{360}\times 160000$ $=\$32000$	[M1; for $72°\pm1°$] [A1]
6(b)	The family's annual income in 2024 might be less than that in 2023, such that even though they spent a great proportion of their income on food in 2024 (25% compared to $\frac{72}{360}\times 100\% = 20\%$), the total amount spent on food in 2024 might be less than that in 2023.	[B1; for underlined response. Accept any reasonable response]
7(a)	$-(5x-2y)(-3x+4y)$ $=(-5x+2y)(-3x+4y)$ or $-(-15x^2+20xy+6xy-8y^2)$ $=15x^2-20xy-6xy+8y^2$ $=15x^2-26xy+8y^2$	[M1] [A1]
7(b)	$9ab-12ac+28bc-21b^2$ $=3a(3b-4c)-7b(3b-4c)$ or $3a(3b-4c)+7b(4c-3b)$ $=(3b-4c)(3a-7b)$	[M1] [A1]
8(a)	$2y=3-6x$ $y=-3x+\frac{3}{2}$ Gradient is -3.	[B1]
8(b)	The line in part (a) is parallel to the line in part (b) since they have the same gradient. Also, for the line in part (a), when $x=0$, $y=\frac{3}{2}$. The point (0, 1) does not lie on the line in part (a). Therefore, the two lines will not intersect.	[B1] [B1; must explain that (0, 1) does not lie on the line in part (a). Accept any reasonable response]
9(a)	$BC=\sqrt{4^2-3^2}$ $=\sqrt{7}$ $=2.65$ cm (3 s.f.)	[M1] [A1]
9(b)	$BC^2=\left(\sqrt{7}\right)^2=7$ $BD^2+CD^2=(2)^2+\left(\sqrt{3}\right)^2=7$ Since $BC^2=BD^2+CD^2$, by the Converse of Pythagoras' Theorem, triangle BCD is right-angled.	[Must be two separate lines of working] [B1; alternative method: use Cosine Rule to find angle BDC exactly $90°$]

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10	$\frac{4x^2+19x-30}{32x^3-50x}$ $=\frac{(4x-5)(x+6)}{2x(4x-5)(4x+5)}$ or $\frac{(4x-5)(x+6)}{x(4x-5)(8x+10)}$ $=\frac{x+6}{2x(4x+5)}$	[B1: for numerator] [B1: for denominator] [B1]
11	$\frac{x-3}{3}-\frac{1-x^2}{2-3x}=1$ $(x-3)(2-3x)-3(1-x^2)=3(2-3x)$ $2x-3x^2-6+9x-3+3x^2=6-9x$ $11x-9=6-9x$ $20x=15$ $x=\frac{3}{4}$ or 0.75	[M1: removing denominator] [M1: expand $(x-3)(2-3x)$ correctly] [A1]
12	Each interior angle of pentagon $=\frac{(5-2)\times 180}{5}$ $=108°$ Each interior angle of octagon $=\frac{(8-2)\times 180}{8}$ $=135°$ Sum of angles of a, b and c $=(360-108)+2(360-108-135)$ $=486°$	[M1] [M1] [A1]

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13	$d = kt^2$ $320 = k(8)^2$ $k = \frac{320}{64}$ $k = 5$ $80 = 5t^2$ $t^2 = \frac{80}{5} = 16$ $t = \pm\sqrt{16} = 4$ or -4 (N.A.) $t = 4$	[M1] [A1]
14	Let the amount of money shared by $\$x$. Amy's original share: $\frac{2}{9}x$ Amy's final share: $\frac{3}{4}\left(\frac{2}{9}x\right) = \frac{1}{6}x$ Amy's transferred share: $\frac{1}{4}\left(\frac{2}{9}x\right) = \frac{1}{18}x$ Ben's original share: $\frac{3}{9}x = \frac{1}{3}x$ Ben's final share: $\frac{2}{3}\left(\frac{1}{3}x + \frac{1}{18}x\right) = \frac{7}{27}x$ Ben's transferred share: $\frac{1}{3}\left(\frac{1}{3}x + \frac{1}{18}x\right) = \frac{7}{54}x$ Cal's original share: $\frac{4}{9}x$ Cal's final share: $\frac{4}{9}x + \frac{7}{54}x = \frac{31}{54}x$ Final ratio $= \frac{1}{6}x : \frac{7}{27}x : \frac{31}{54}x$ $= 9 : 14 : 31$	 [M1] [M1] [M1] [A1]

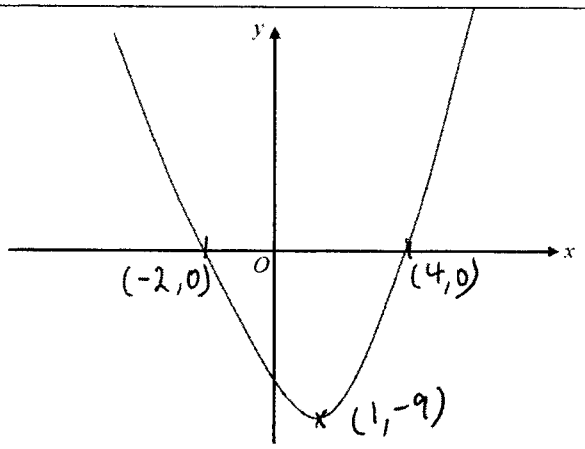
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15(a)	$15\times5.8=5\times14.4+10x$ $10x=15$ $x=1.5$	[M1] [A1]
15(b)	Median would be more appropriate because the mean would be affected by the outlier of 50 points. The player who scored 50 points contributed about 69% of all points scored by starting players.	[B1: must mention outlier of 50 points. Accept any reasonable response]
16(a)	$AC=2a$ $BD=2d$ Area of rhombus $=\frac{1}{2}(2a\times2d)$ $=2ad$	 [B1]
16(b)	Area of triangle PQS $=\frac{1}{2}(x\times2y)$ $=xy$ $MR=3x$ Area of triangle RQS $=\frac{1}{2}(3x\times2y)$ $=3xy$ Area of kite $=xy+3xy$ $=4xy$	 [M1] [A1]

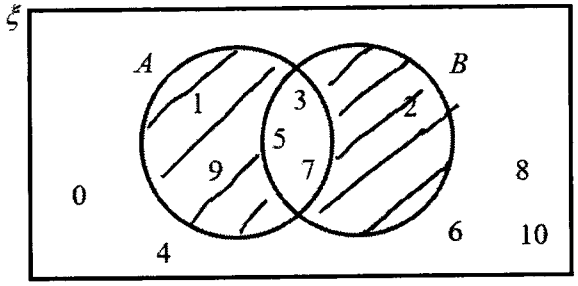
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17(a)	$\left(\frac{625x^4}{y^8}\right)^{-\frac{1}{4}}$ $=\frac{\frac{1}{5}x^{-1}}{y^{-2}}$ $=\frac{y^2}{5x}$	[M1: for either $\frac{1}{5}$, x^{-1}, y^{-2}] [A1]
17(b)	$243^a = 3^8+3^8+3^8$ $3^{5a} = 3^8(1+1+1)$ $3^{5a} = 3^8(3)$ $3^{5a} = 3^9$ By comparing indices, $5a = 9$ $a = \frac{9}{5}$ or $1\frac{4}{5}$ or 1.8	[M1: for getting 3^{5a} or 3^9] [A1]
18(a)	When $x \neq h$, $(x-h)^2 > 0$ and $y=(x-h)^2+k>k$. When $x=h$, $(x-h)^2=0$ and $y=(x-h)^2+k=k$. (Or mention that coeff of x^2 is positive) So, y has its minimum value of k when $x=h$.	[B1: for highlighted part]
18(b)	Since the graph of $y=(x-h)^2+k$ is symmetrical about the vertical line passing through its minimum point, $h=\frac{-2+4}{2}$ $h=1$ (shown)	[B1]
18(c)	Sub $x=4$, $y=0$, $h=1$, $0=(4-1)^2+k$ $k=-9$ Min. value of y is -9.	[B1]

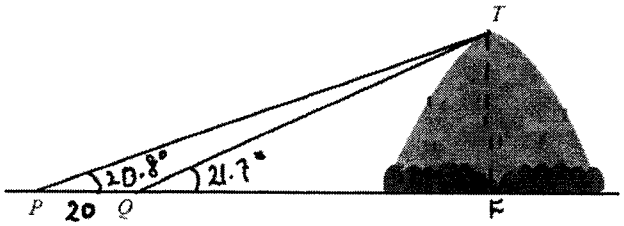
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18(d)		[C1: correct shape] [P1: correct coordinates for x-intercepts and min pt; must be coordinates]
19(a)	When $n=1$, $\frac{3}{2}(1)(1-3)=-3$ So, $T_1=-3$ When $n=2$, $\frac{3}{2}(2)(2-3)=-3$ So, $T_1+T_2=-3$ $-3+T_2=-3$ $T_2=0$ When $n=3$, $\frac{3}{2}(3)(3-3)=0$ So, $T_1+T_2+T_3=0$ $-3+0+T_3=0$ $T_3=3$ First 3 terms: -3, 0, 3	[B1: one correct term] [B1: all terms correct]
19(b)	$T_1=-3$ Common difference = 3 $T_n=-6+3n$	[B1]
19(c)	Since $T_n=-6+3n=3(n-2)$, each term in the sequence is a multiple of 3.	[B1: must show factorization]

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20	$\angle CDA = 180° - 119°$ ($\angle$s in opp. segments) $= 61°$ $\angle OAT = 90°$ (tan $\perp$ rad) $\angle OAD = 29°$ (base $\angle$s of isos. Δ) So, $\angle DAT = 90° - 29°$ $= 61°$ Since $\angle CDA = \angle DAT$, they are <u>alternate angles</u> and lines CD and ST are parallel	[B1: with reason] [B1: with reason for tan $\perp$ rad] [A1]
21(ai)	$A' \cap B' = \{0, 4, 6, 8, 10\}$	[B1]
21(aii)		[B1]
21(bi)	12, 16	[B1: do not accept {12, 16}]
21(bii)	$P = \{16\}$ $Q = \phi$ $R = \{12, 16\}$ So, $(P \cup Q) \cap R' = \phi$ $\therefore n[(P \cup Q) \cap R'] = 0$	 [B1]

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22	 **Method 1** Let distance QF be x m. $\tan 20.8° = \frac{TF}{20+x}$ $(20+x)\tan 20.8° = TF$ $x = \frac{TF - 20\tan 20.8°}{\tan 20.8°}$ $\tan 21.7° = \frac{TF}{x}$ $x = \frac{TF}{\tan 21.7°}$ So, $\frac{TF - 20\tan 20.8°}{\tan 20.8°} = \frac{TF}{\tan 21.7°}$ $TF\tan 21.7° - 20\tan 20.8°\tan 21.7° = TF\tan 20.8°$ $TF\tan 21.7° - TF\tan 20.8° = 20\tan 20.8°\tan 21.7°$ $TF(\tan 21.7° - \tan 20.8°) = 20\tan 20.8°\tan 21.7°$ $TF = \frac{20\tan 20.8°\tan 21.7°}{\tan 21.7° - \tan 20.8°}$ = 167 m (3 s.f.)	[M1] [M1] [M1] [A1]
	Method 2: $\angle PQT = 180° - 21.7°$ (adj ∠s on a st. line) $= 158.3°$ $\angle PTQ = 180° - 158.3° - 20.8°$ (∠ sum of Δ) $= 0.9°$ By Sine Rule, $\frac{PT}{\sin 158.3°} = \frac{20}{\sin 0.9°}$ $PT = \frac{20\sin 158.3°}{\sin 0.9°}$ $= 470.79555$	[M1] [M1]

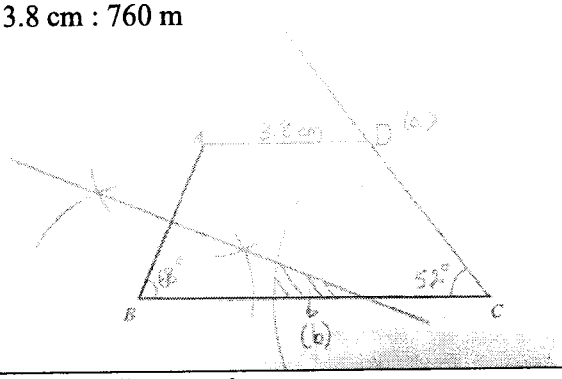
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	$\sin 20.8° = \frac{TF}{470.79555}$ $TF = 470.79555 \sin 20.8°$ $= 167$ m (3 s.f.)	[M1] [A1]
23(a)	$\mathbf{P} = \begin{pmatrix} 5 & 4 & 6 \\ 8 & 7 & 9 \end{pmatrix}$	[B1]
23(b)	$\mathbf{T} = \begin{pmatrix} 5 & 4 & 6 \\ 8 & 7 & 9 \end{pmatrix} \begin{pmatrix} 120 \\ 80 \\ 100 \end{pmatrix}$ $= \begin{pmatrix} 1520 \\ 2420 \end{pmatrix}$	[B2: B1 for each of the element]
23(c)	The elements in **T** represent the <u>total cost</u> ($1520) and the <u>total revenue</u> ($2420; or selling price) <u>respectively</u> of the cakes <u>sold</u> by the shop <u>in July</u>.	[B1: not necessary to state the values of the elements; <u>do not accept the term "earnings"</u>]
23(d)	$\mathbf{Q} = \begin{pmatrix} -1 & 1 \end{pmatrix}$	[B1]
24(a)	Volume of one cup $= \frac{1}{3}\pi\left(\frac{6.9}{2}\right)^2 (9.1)$ $= 113.4248$ $= 113$ cm^3 (3 s.f.)	[B1]
24(b)	18.9 l = 18 900 cm^3 Max number of cups $= \frac{18900}{113.4248}$ $= 166.63$ = 166 cups that are completely filled	[M1] [A1]
24(c)	Let the curved surface area of smaller cone (i.e. cup) be A_1, t and that of larger cone (i.e. cup + frustrum) be A_2. By similar cones, $\left(\frac{d_2}{d_1}\right)^2 = \frac{A_2}{A_1} = 2$ $\frac{d_2}{d_1} = \sqrt{2}$	[M1]

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	$\frac{V_2}{V_1}=\left(\frac{d_2}{d_1}\right)^3$ $=\left(\sqrt{2}\right)^3$ $V_2=\left(\sqrt{2}\right)^3\times 113.4248$ $=320.81378$ Volume of frustrum shaped cup $=320.81378-113.4248$ $=207\ \text{cm}^3$ (3 s.f.)	[M1] [M1] [A1]
25(a)	Position of median $=\frac{22+1}{2}$ $=11.5$ Median $=\frac{2+3}{2}$ $=2.5$	[B1]
25(b)	The student's claim is <u>true</u> because there are <u>6 missing data</u> in the dot diagram. If all the 6 students scored 0 goal (or 1 goal), the modal number of goals scored would be 0 (or 1) instead of 2.	[B1: student <u>must provide an example where the mode is 0 or 1</u>]
25(ci)	0	[B1]
25(cii)	$\frac{4}{22}=\frac{2}{11}$	[B1]
25(ciii)	$\frac{11}{22}=\frac{1}{2}$	[B1]

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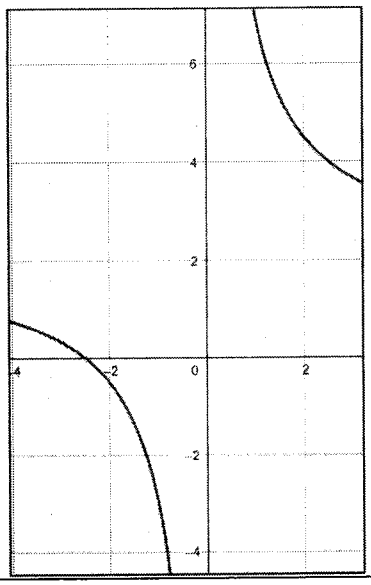
26(a)	1 cm : 20 000 cm 1 cm: 200 m 3.8 cm : 760 m  	[M1: construction of 52° line or 3.8 cm arc from A] [A1: complete quadrilateral and labeling of D]
26(b)	Refer to diagram above.	[M1: construction of perpendicular bisector or 5 cm arc from C] [A1: correct shaded region]
26(c)	$\angle ABC = 68°$ Length of pathway $= \frac{68}{360} \times 2\pi(400)$ $= 475\,\text{m}$ (3 s.f.)	[M1] [A1]

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Ngee Ann Secondary School
Secondary 4&5 Elementary Mathematics-O
2025 Prelim paper 2
Marking Scheme

Qn No.	Qn Part	Solutions	Marks (Remarks)	Total
1	(a)(i)	$x=\frac{3h^2(y+b)}{b}-1$ $2=\frac{3h^2(0+5)}{5}-1$ $3=3h^2$ $h^2=1$ $h=\pm1$	M1: substitution A1: both answers	[2]
	(a)(ii)	$x=\frac{3h^2(y+b)}{b}-1$ $xb=3h^2(y+b)-b$ $xb=3h^2y+3h^2b-b$ $xb+b-3h^2b=3h^2y$ $b(x+1-3h^2)=3h^2y$ $b=\frac{3h^2y}{x+1-3h^2}$	M1: Multiply denominator throughout M1: Grouping and factorising b A1	[3]
	(b)	$6x-3y=16---(1)$ $9x+2y=11---(2)$ $(1)\times2$ $12x-6y=32$ $(2)\times3$ $27x+6y=33$ $39x=65$ $x=1\frac{2}{3}$ $6\left(1\frac{2}{3}\right)-3y=16$ $y=-2$	M1: Substitution/ Elimination A1 A1	[3]
	(c)	$\frac{19x+3}{2x^2-5x-3}+\frac{2}{x-3}=7$		

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		$\frac{19x+3}{(2x+1)(x-3)}+\frac{2}{x-3}=7$ $19x+3+2(2x+1)=7(2x^2-5x-3)$ $19x+3+4x+2=14x^2-35x-21$ $14x^2-58x-26=0$ $x=\frac{58\pm\sqrt{(-58)^2-4(14)(-26)}}{2(14)}$ $x=-0.41$ or $x=4.55$	M1 M1 A1	[3]
2	**(a)**	5.3	B1	[1]
	(b)	Refer to graph 	B2: correct points plotted B1: any one error B1: Smooth curve	[3]
	(c)	$a=0.3$; $b=3.7$	B1, B1	[2]
	(d)	– 1.13 to – 1.39	M1: drawing of correct tangent A1: Within the range	[2]
	(e)	$2+\frac{5}{x}=\frac{5-x}{4}$ $8+\frac{20}{x}=5-x$ $8x+20=5x-x^2$		

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		$x^2+3x+20=0$ $A=1$ and $B=-3$	B1, B1	[2]
3	**(a)**	$\frac{1500}{x}$	B1	[1]
	(b)	$\frac{1500}{x-50}$	B1	[1]
	(c)	$\frac{1500}{x-50}-\frac{1500}{x}=2\frac{1}{2}$ $1500x-1500(x-50)=\frac{5}{2}(x^2-50x)$ $3000x-3000(x-50)=5(x^2-50x)$ $3000x-3000x-150000=5x^2-250x$ $5x^2-250x+150000=0$ $x^2-50x+30000=0$ (Shown)	M1: Correct equation AG1	[2]
	(d)	$x^2-50x+30000=0$ $(x+150)(x-200)=0$ $x=200$ or $x=-150$	M1: factorisation or other method A1, A1	[3]
	(e)	$\frac{200}{\pi}=63.7$ cm (3 sf)	B1	[1]

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4	**(a)(i)**	29 min	B1	[1]
	(a)(ii)	$34-23$ $=11$ min	M1 A1	[2]
	(a)(iii)	$\frac{80-44}{80}\times 100\%$ $=45\%$	M1 A1	[2]
	(b)	The new cumulative frequency curve will meet the given curve at the median. However, the gradient of the new cumulative frequency curve from the lower quartile to upper quartile will be less steep as compared to given curve.	B1	[1]
	(c)(i)	$\frac{26}{80}\times\frac{25}{79}=\frac{65}{632}$	B1	[1]
	(c)(ii)	$\frac{26}{80}\times\frac{14}{79}\times 2$ $=\frac{91}{790}$	M1 A1	[2]
5	**(a)(i)**	$\overrightarrow{DB}=16\mathbf{p}-5\mathbf{q}$	B1	[1]
	(a)(ii)	$\overrightarrow{DP}=\frac{1}{4}(16\mathbf{p}-5\mathbf{q})$ $\overrightarrow{AP}=\overrightarrow{AD}+\overrightarrow{DP}$ $=5\mathbf{q}+\frac{1}{4}(16\mathbf{p}-5\mathbf{q})$ $=\frac{15}{4}\mathbf{q}+4\mathbf{p}$	M1 A1	[2]
	(b)	$\overrightarrow{DC}=\frac{4}{3}\overrightarrow{AB}$ $\overrightarrow{BC}=\overrightarrow{BA}+\overrightarrow{AP}+\overrightarrow{DC}$ $=-16\mathbf{p}+5\mathbf{q}+\frac{64}{3}\mathbf{p}$ $=\frac{16}{3}\mathbf{p}+5\mathbf{q}$ $\overrightarrow{BC}=\frac{4}{3}(\frac{15}{4}\mathbf{q}+4\mathbf{p})$	M1: find $\overrightarrow{BC}$	

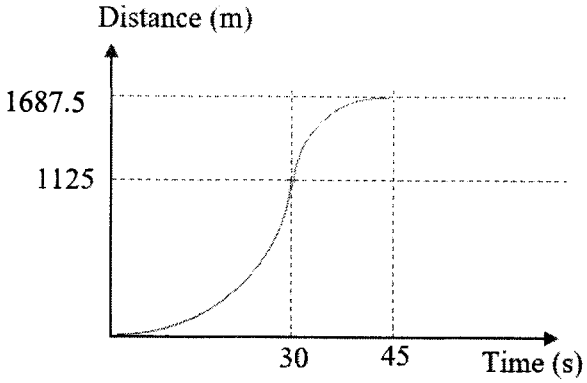
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		$= \frac{4}{3}\overrightarrow{AP}$ Since $\overrightarrow{BC} = \frac{4}{3}\overrightarrow{AP}$, they are parallel.	 A1	[2]
	(c)	$\measuredangle APB = \measuredangle CBD$ (alternate $\measuredangle$, $AP//BC$) $\measuredangle ABP = \measuredangle CDB$ (alternate $\measuredangle$, $AB//DC$) Triangle APB is similar to Triangle CBD by AA similarity. Triangle APB : Triangle BCD $3^2 : 4^2$ $9 : 16$ OR $\frac{\text{Area of Triangle } APB}{\text{Area of Triangle } BAD} = \frac{3}{4}$ $\frac{\text{Area of Triangle } BAD}{\text{Area of Triangle } BCD} = \frac{3}{4}$ $\frac{\text{Area of Triangle } APB}{\text{Area of Triangle } BAD} \times \frac{\text{Area of Triangle } APB}{\text{Area of Triangle } BAD}$ $= \frac{3}{4} \times \frac{3}{4}$ $= \frac{9}{16}$	B1: Any correct line B1: All correct A1 M1: Any of the ratio M1 A1	[3]
	(d)	Since Triangle APD and Triangle APB have common height, Triangle APD : Triangle APB $1 : 3$ Triangle APD : Trapezium $ABCD$ $3 : 28$ (Since $16 + 9 + 3 = 28$) OR	 M1 A1	

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		$\frac{\text{Area of Triangle } APD}{\text{Area of Triangle } BAD} \times \frac{\text{Area of Triangle } BAD}{\text{Area of Trapezium } ABCD}$ $= \frac{1}{4} \times \frac{3}{7}$ $= \frac{3}{28}$	M1 A1	[2]
(6)	(a)	$\measuredangle POS = \measuredangle QOR$ (vertically opposite $\measuredangle$) $OS = OR$ (radii of circle) $\measuredangle OSP = \measuredangle ORQ$ (tangent $\perp$ radius) Triangle PSO is congruent to Triangle QRO (ASA). $\measuredangle ORQ = \measuredangle OSP$(tan $\perp$ *rad*) $OQ = OP$ (radii of circle) $OR = OS$ (radii of circle) Triangle PSO is congruent to Triangle QRO (RHS).	B1: For any line B1: All correct	[2]
	(b)(i)	$QR = \sqrt{8^2 - 4.36^2}$ $= 6.707488353$ Area of triangle: $\frac{1}{2} \times 4.36 \times 6.707488353$ $= 14.6$ cm^2 (3 sf)	M1 M1 A1	[3]
	(b)(ii)	Shaded circular area: $\pi(8)^2 - \pi(4.36)^2$ $= 141.3415101$ $\measuredangle ROQ = \cos^{-1}\left(\frac{4.36}{8}\right)$ $= 0.9944072121$ Area of sector: $\frac{1}{2}(4.36)^2(0.9944072121)$ $= 9.451641669$ Total shaded area: $141.34151 - 2(14.62232461 - 9.451641669) +$ $2(9.451641669)$ $= 149.9034$ cm^2 $= 150$ cm^2 (3 sf)	 M1 M1 M1 A1	[4]

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7	**(a)(i)**	$75 \div 30 = 2\frac{1}{2}\text{ m/s}^2$	B1	[1]
	(a)(ii)	$75 \div 5 = 15$ s	B1	[1]
	(a)(iii)		B1: correct shape for both sections B1: correct values on both axes	[2]
	(b)(i)	For 70 m/s, Time for acceleration: $70 \div 2\frac{1}{2} = 28$ min Time for deceleration: $70 \div 5 = 14$ min Distance covered by 70 m/s $\frac{1}{2} \times 28 \times 70 + \frac{1}{2} \times 70 \times 14 = 1470$ m The plane will be able to decelerate safely if the speed of the aircraft is 70m/s as the distance covered would be less than 1600 m.	M1 M1 M1 A1: Must include comparison with 1600 m	[4]
	(b)(ii)	V_1 would be lower as there are less friction, and the runway is of a fixed length.	B1	[1]
8	**(a)**	Angle ABD: $180° - 76° - 50° = 54°$ Bearing of D from B: $360° - 54° - 76° = 230°$	M1 A1	[2]
	(b)	Let AX be the shortest distance.		

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		$AX = 55\sin 54°$ $= 44.49593469$ $\tan\theta = \dfrac{10}{44.49593469}$ $\theta = 12.66618°$ $= 12.7°$	M1 M1 A1	[3]
	(c)	$\dfrac{BD}{\sin 76°} = \dfrac{55}{\sin 50°}$ $BD = \dfrac{55\sin 76°}{\sin 50°}$ $= 69.664711$ m Area of park: $\dfrac{1}{2}\times 55\times 69.664711\times\sin 54° + \dfrac{1}{2}\times 30\times 69.664711\times\sin 130$ $= 2350.392187$ $= 2350$ m^2	M1 M1,M1: Area of each triangle A1	[4]
	(d)	$BC = \sqrt{30^2 + 69.664711^2 - 2(30)(69.664711)\cos 130°}$ $= 91.86919365$ m $\dfrac{AD}{\sin 54°} = \dfrac{55}{\sin 50°}$ $AD = \dfrac{55\sin 54°}{\sin 50°}$ $= 58.08531749$ m Perimeter: 55 +30 +91.86919365 +58.08531749 $= 234.9545111$ <u>I disagree with Tony</u> as the perimeter is less than 240m.	M1: Find *BC* M1: Find *AD* A1: Need concluding statement with comparsion with 240 m	[3]
9	**(a)**	$9880 - 1480 - 10 - 5 = \$8385$	B1	[1]

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	(b)	Based on lowest rate, 54 000 × 1.280108 = SGD 69 125.83 OR Based on highest rate, 54 000 × 1.31154 = SGD 70 823.16 OR Based on average rate, 54 000 × ((1.280108+1.31154)/2) = SGD 69 974.50	M1 A1	[2]
	(c)	Only Cash Components: Buyer Stamp Duty: 1800 + 180 000×0.02+ 640 000×0.03+ 300 000×0.04 = $36 600 Booking Fee: 0.05 × 1 300 000 = $65 000 Total: 3000 + 500 + 36 600 + 65 000 = $105 100	M1: BSD M1: Booking Fee A1	[3]
	(d)	Assumption: Mr Sim used current account and matured fixed deposit to pay for the condominium. Outstanding amount: 0.95×1 300 000 = $1 235 000 Assuming that the contribution from his June pay is negligible Remaining amount to be covered by Bank loan 1 235 000 – 350 000 – (69 974.50 – 5100) = $820 125.50 Interest over 20 years: $\frac{820125.50\times3.3\times20}{100}$ = $541 282.83	M1: Find loan amount M1: Interest	

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		Suggested condo instalment: $\frac{541282.83+820125.50}{20\times12}$ $= \$5672.53$ Loan limit: $0.75\times1\,300\,000 = \$\,975\,000 > \$820\,125.50$ Salary limit: $0.55 \times 9880 = \$5434 < \$5672.53 + 550$ Mr Sim will not secure a bank loan as he does not meet the salary limit.	M1: Instalment M1 M1 A1: correct conclusion with correct LL and SL	[6]

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