Qr	1	Qn Solution		Content/Success Criteria		
1	(a)	$\frac{3}{3(3-9)}$	$\frac{-2x}{7} = \frac{1}{3}(2x-1)$ 2x) = 7(2x-1) -6x = 14x - 7 20x = 16 $.8 / \frac{4}{5}$	I can multiply LCM to remove t denominators on both sides of a linear equation involving fractio I can solve a linear equation. Content L		
				Complexity	L	
				Context	L	
				Response Strategy	Simple	
				Assessment Objective	AO1	
	(b)	(i)	$\frac{25a^2 - 9b^2}{15a - 10ab + 6b^2 - 9b}$ (5a) ² - (3b) ²	I can factorise a expressions by grouping.	algebraic identity and	
			$=\frac{(2-1)^{2}}{5a(3-2b)+3b(2b-3)}$	Content	L	
			(5a-3b)(5a+3b)	Complexity	L	
			$=\frac{(2a^{2}-2b)(2a^{2}-2b)}{5a(3-2b)-3b(3-2b)}$	Context	L	
			$=\frac{(5a-3b)(5a+3b)}{(5a-3b)(3-2b)}$	Response Strategy	Simple	
			$=\frac{5a+3b}{3-2b}$	Assessment Objective	AO1	
		(ii)	$\frac{3c}{4ab} \div \frac{c^3}{12a^2b}$ $= \frac{3c}{4ab} \times \frac{12a^2b}{c^3}$ $= \frac{36a^2bc}{4abc^3}$ $= \frac{9a}{a^2}$	I can take re division to mul I can apply simplify algebr Content Complexity Context Response	reciprocal to convert aultiplication. 7 laws of indices to 2 braic expressions. L L L L Routine	
			L	Strategy Assessment Objective	AO1	

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Qn			Solution	Content/Success	Criteria
	(c)	(i)	$-x^2 + 9x - \frac{7}{2} = 0$		
			$x^2 - 9x + \frac{7}{2} = 0$	I can complete th	e square.
			$\left(x - \frac{9}{2}\right)^2 + \frac{7}{2} - \left(-\frac{9}{2}\right)^2 = 0$	I can solve equation using complete the square method	
			$\left \left x - \frac{x}{2} \right \right - \frac{3x}{4} = 0$	Content	L
				Complexity	L
			$\left(x-\frac{9}{2}\right)^2 = \frac{67}{2}$	Context	L
			$\begin{pmatrix} x \\ 2 \end{pmatrix} 4$ $\overline{67} 9$	Response Strategy	Routine
			$x = \pm \sqrt{\frac{1}{A} + \frac{1}{2}}$		
			x = 8.59268 or 0.407324	Assessment Objective	AO1
			x = 8.59 or 0.41		
		(ii)	$-x^{2}+9x-\frac{7}{2}=-(x-45)^{2}+1675/\frac{67}{2}$	I know	that
			2 (x 1.5) + 10.757 4	$y = -x^2 + 9x - \frac{7}{2}$	has
			Since the maximum value of $y = -x^2 + 9x - \frac{7}{2}$ is	max. value.	
				I can find max. v	alue with
			16./5/-4 < 18. There is no solution when $y = 18$.	complete square	form of
				quadratic equation	n.
				Content	L
				Complexity	M
				Context	M
				Response	Routine
				Strategy	
				Assessment Objective	AO3
OI	R		$-x^2 + 9x - \frac{7}{2} = 18$		
			$-x^2 + 9x - \frac{43}{2} = 0$		
			Discriminant = $(9)^2 - 4(-1)\left(-\frac{43}{2}\right)$		
			= -5		
			Since discriminant < 0, $-x^2 + 9x - \frac{7}{2} = 18$ has no		
			solution.		

Qı	1	Solu	tion	Content/Success Criteria	
2	(a)	P(mg	on who passed test) $-\frac{1\times3}{3}-\frac{3}{3}$	I can find the pr	obability of a
		1 (1110	7×3^{-21}	single event.	
		∴ tł	he number of men who passed the test $= 3$		
		_			
		Let t	he number of women who failed the test be x		
		P(bo	th women failed the test) = $\frac{x}{24} \times \frac{x-1}{22} = \frac{1}{12}$	I can use multiplication of	
			21 20 10	probabilities for simple	
			$x^{2} - x = \frac{420}{10}$	combined events.	
			10^{2} 12 0		
			x - x - 42 = 0 (x - 7)(x + 6) = 0		N
			(x - 7)(x + 0) = 0 x - 7 or 6 (rejected)	Complexity	M
			x = 7 or -0 (rejected)	Context	M
		Won	pen who passed the test $-21-9-7-3$	Baspansa	IVI
		won	= 2	Strategy	Unfamiliar
			- 2	Strategy	
			Passed Failed		
		Ν	Aen 3 9	Assessment	AO2
		W	omen 2 7	Objective	
		G 1	2 0	<u>a</u> , , , , , a	<u> </u>
	1 (1-)	Solu	tion	Content/Succ	ess Criteria
2	(D)	(1)	A set of students who only listen to pop music but	I can represent	elements of
			not classical music.	set notation in v	volus.
				I can find the	e number of
				elements in any	sets.
		(ii)	10	Content	L
		(iii)	4	Complexity	М
		(iv)	9	Context	М
				Response	Simple
				Strategy	Simple
				Assessment	102
				Objective	AU2



Success Criteria(c) $2x + \frac{20}{x} < 22$ I can solve inequality using graph. $2x + \frac{20}{x} - 15 < 22 - 15$ ContentM $2x + \frac{20}{x} - 15 < 7$ ContextL $2x + \frac{20}{x} - 15 < 7$ ResponseunfamilianDraw a line of $y = 7$ on the graphStrategyunfamilian $\therefore 1 < x < 10$ AssessmentAO2(d)Draw a tangent at $x = 4$ I know how to find tangent of a graph. $gradient = \frac{2.5 - (-5)}{10 - 0}$ ContentL $= 0.75$ (accept ± 0.2)ContextLResponseStrategyRoutineKesponseRoutine
(c) $2x + \frac{20}{x} < 22$ $x + \frac{20}{x} - 15 < 22 - 15$ $2x + \frac{20}{x} - 15 < 7$ Draw a line of $y = 7$ on the graph $\therefore 1 < x < 10$ I can solve inequality using graph. Content(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ $= 0.75$ (accept ± 0.2)I can solve inequality using graph. Content(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ $= 0.75$ (accept ± 0.2)I know how to find tangent or a graph. Content(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ $= 0.75$ (accept ± 0.2)I know how to find tangent or a graph. Content
$2x + \frac{20}{x} - 15 < 22 - 15$ graph. $2x + \frac{20}{x} - 15 < 7$ ContentM $2x + \frac{20}{x} - 15 < 7$ ContextLDraw a line of $y = 7$ on the graphStrategyunfamilian $\therefore 1 < x < 10$ AssessmentAO2(d)Draw a tangent at $x = 4$ I know how to find tangent of a graph.gradient = $\frac{2.5 - (-5)}{10 - 0}$ ContentL $= 0.75$ (accept ± 0.2)ContextLResponseContentLResponseRoutineStrategyRoutine
$2x + \frac{20}{x} - 15 < 22 - 15$ ContentM $2x + \frac{20}{x} - 15 < 7$ ContextL $2x + \frac{20}{x} - 15 < 7$ ResponseunfamiliarDraw a line of $y = 7$ on the graphStrategyunfamiliar $\therefore 1 < x < 10$ AssessmentAO2(d)Draw a tangent at $x = 4$ I know how to find tangent of a graph.gradient = $\frac{2.5 - (-5)}{10 - 0}$ ContentL $= 0.75$ (accept ± 0.2)ContextLResponseContextLResponseRoutineStrategyRoutine
$2x + \frac{x}{x} - 15 < 22 - 15$ ComplexityM $2x + \frac{20}{x} - 15 < 7$ ResponseunfamiliarDraw a line of $y = 7$ on the graphStrategyunfamiliar $\therefore 1 < x < 10$ AssessmentAO2(d)Draw a tangent at $x = 4$ I know how to find tangent of a graph.gradient = $\frac{2.5 - (-5)}{10 - 0}$ ContextL $= 0.75$ (accept ± 0.2)ContextLResponseContextLResponseRoutineStrategyRoutine
$2x + \frac{20}{x} - 15 < 7$ Draw a line of $y = 7$ on the graph $\therefore 1 < x < 10$ ContextLResponse Strategyunfamiliar Assessment Objective AO2(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ $= 0.75$ (accept ± 0.2)I know how to find tangent of a graph.ContextLContextLContextLResponse gradient = $\frac{2.5 - (-5)}{10 - 0}$ ContentContextLResponse StrategyRoutine
$2x + \frac{1}{x} - 15 < 7$ Draw a line of $y = 7$ on the graph $\therefore 1 < x < 10$ Response Strategyunfamilian AO2(d) Draw a tangent at $x = 4$ gradient $= \frac{2.5 - (-5)}{10 - 0}$ $= 0.75$ (accept ± 0.2)I know how to find tangent of a graph.AO2ContentLContextLResponse StrategyRoutine
StrategyUnitalitiesDraw a line of $y = 7$ on the graphAssessment ObjectiveAO2(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ I know how to find tangent of a graph.(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ I know how to find tangent of a graph.(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ I content(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ Routine(d)Draw a tangent at $x = 4$ gradient =
Image: Draw a fine of $y = r$ on the graphAssessment ObjectiveAO2(d) Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ I know how to find tangent of a graph. $= 0.75$ (accept ± 0.2)ContentLContextLResponse StrategyRoutine
Image: Image in the field of the field o
(d)Draw a tangent at $x = 4$ I know how to find tangent of a graph.gradient = $\frac{2.5 - (-5)}{10 - 0}$ ContentL= 0.75 (accept ± 0.2)ContextLContextLResponse StrategyRoutine
(d) Draw a tangent at $x = 4$ gradient = $\frac{2.5 - (-5)}{10 - 0}$ = 0.75 (accept ±0.2) (d) Draw a tangent at $x = 4$ = 0.75 (accept ±0.2) (c) Tknow how to find tangent constrained in the second seco
$gradient = \frac{2.5 - (-5)}{10 - 0}$ $= 0.75 (accept \pm 0.2)$ $a graph.$ $Content L$ $Complexity L$ $Context L$ $Response$ $Strategy$ $Routine$
$\begin{array}{c c} 10-0 & Content & L \\ = 0.75 (accept \pm 0.2) & Context & L \\ \hline \\ Response \\ Strategy & Routine \\ \end{array}$
$= 0.75 (accept \pm 0.2)$ $Complexity L$ $Context L$ $Response$ $Strategy$ $Routine$
ContextLResponse StrategyRoutine
Response Strategy Routine
Strategy
Assessment
Objective
(e) $x^2 - 13x + 20 = 0$ I can solve quadratic equation
x^2 13x 20 0 using graph.
$\begin{array}{c c} \hline x & \hline \end{array}$ Content L
L2 20 Complexity M
$x-13+\frac{1}{x}=0$ Context M
Response Routine
$2x - 15 + \frac{1}{x} = x - 2$ Strategy
Draw $y = x - 2$ on the graph Assessment
$r = 1.783$ or 11.217 (accept ± 0.15) Objective AO2

Qn		Solution	Content/Success Criteria		
4	(a)	Using sine rule,	I can use sine rule	to find	
		7.5 The second s	unknown length		
		$SI = \frac{1}{\sin 95^{\circ}} \times \sin 40$ Essential step	Content	L	
		= 4.83932	Complexity	L	
			Context	L	
			Response Strategy	simple	
		SX = -ST -1.200821	Assessment	AQ1	
		-1.207051 -1.21 m	Objective	1101	
		- 1.21 III			
		$(\mathbf{P}\mathbf{S}\mathbf{Y} - 180^\circ - 40^\circ - 05^\circ)$ (angle sum of triangle)	I can apply cosine ru	e to find	
	(b)	$2RSA = 180^{\circ} - 40^{\circ} - 93^{\circ}$ (alight sum of thangle)	unknown length		
	(~)	= 45	Content	L	
		Essential sten	Complexity	L	
		Using cosine rule, Essential step	Context	L	
		$XR = \sqrt{1.209831^2 + 7.5^2 - 2(1.209831)(7.5)\cos 45^\circ}$	Desmanas Strate er		
		= 6.69937	Response Strategy	simple	
		= 6.70 m	Assessment	AO1	
			Objective	mor	
		Using sine rule,			
		$TP = 7.5 \times \sin 45^{\circ}$			
		$\frac{1100}{10000000000000000000000000000000$			
		= 5.3236 m			
0	DR	$XT = \frac{3}{4} \times 4.83932$			
		= 3.62949 m			
		Using cosine rule, Essential step			
		$XR = \sqrt{3.62949^2 + 5.3236^2 - 2(3.62949)(5.3236)\cos 95^\circ}$			
		= 6.69937			
		= 6.70 m			
(c)		By Pythagoras' Theorem, $P_{\rm N}$	I can use Pythagoras'	Theorem	
		$PT = \sqrt{2.5^2 + 4.8393^2}$	to find unknown leng	th	
		= 5.4469	Content	L	
		= 5.45 m 2.5	Complexity	L	
			Context	L	
		$S \xrightarrow{\square} T$	Response Strategy	simple	
		4.8393	Assessment Objective	A01	

Qn		Solution	Content/Success Criteria		
	(d)	Let the point directly below the bird be <i>B</i> . $\angle SBX = 90^{\circ}$ for <i>XB</i> to be the shortest distance	I know that shortest distance gives largest angle of elevation I can use trigo ratio to find unknown angle		
		$XB = \sin 45^{\circ} \times 1.209831$ Essential step 1.209831	Content	L	
		$= 0.8554797 \text{ m}$ $x = \frac{2.5}{1000000000000000000000000000000000000$	Complexity	M	
			Response Strategy	taught	
		$\begin{aligned} & 0.8554797 \\ \theta &= \tan^{-1} \left(\frac{2.5}{0.8554797} \right) \\ &= 71.10947 \\ &= 71.1^{\circ} (1 \text{ d.p}) \end{aligned}$	Assessment Objective	A02	
OR		$\frac{1}{2} \times 7.5 \times h = \frac{1}{2} \times 1.20983 \times 7.5 \times \sin 45^{\circ}$ h = 0.85547 $\theta = \tan^{-1} \left(\frac{2.5}{0.8554797} \right)$ = 71.10947 = 71.1° (1 d.p)			

Qn			Solution	Content/Success Criteria	
5	(a)	(i)	$\angle ABD = \angle ACD \ (\angle s \text{ in same segment})$	I can apply	y circle
			$=30^{\circ}$	properties to find	l angle
			- 50		
		(::)	(ACR (ORC (here (r of increales A))	I con comb	a airela
		(11)	$\angle ACB = \angle OBC$ (base $\angle s$ of isosceles \triangle)	I can apply	y circle
			$=40^{\circ}$	Content	I aligie
			$\angle BCD = 40^{\circ} + 30^{\circ}$	Complexity	L I
			$=70^{\circ}$	Context	L
			$\angle BAD = 180^{\circ} - 70^{\circ}$ ($\angle s$ in opposite segments)	Response	
			=110°	Strategy	taught
				Assessment	4.01
				Objective	AOI
		(iii)	Let r be the radius of the circle,	I can find rad	ius given
			$\angle DOB = 140^{\circ}$ (\angle at centre = 2 \angle at circumferene)	angle	
			140°	Content	L
			$\frac{1}{360^{\circ}} \times 2\pi r = 11$	Complexity	L
			11	Context	M
			$r = \frac{11}{7}$	Response	taught
			$\frac{1}{18} \times 2\pi$	Aggaggment	
			-45	Objective	AO2
			$- \tau$.	Objective	
			$/DOB - 140^{\circ}$ (/ at centre = 2/ at circumferene)		
			rA = 11		
	OP		11		
	UK		$r = \frac{11}{\pi}$		
			$140 \times \frac{\pi}{180}$		
			180		
			= 4.5		
	(h)	(i)	$/PTC / PCD - 70^{\circ}$ (found in (a(ii))	I can apply	
	(0)	(1)	$\angle BTC = \angle BCD = /0$ (round in (a(ii))	properties to fin	d angle to
			$\angle OBT = 90$ (tan \perp radius)	prove similarity	<i>a a</i> 1.810 to
			$\angle CBT = 90^{\circ} - 40^{\circ}$	1 5	
			$=50^{\circ}$	Content	L
			$\angle BOC = 180^{\circ} - (40^{\circ} \times 2)$ (base $\angle s$ of isosceles \triangle)	Complexity	M
			$=100^{\circ}$	Context	М
			100°	Response	taught
			$\angle BDC = \frac{1}{2}$ (\angle at centre = $2\angle$ at circumference)	Strategy	Ũ
			$=50^{\circ}$	Assassment	
			$\therefore \angle CBT = \angle BDC = 50^{\circ}$	Ohiective	AO2
			$\therefore \Delta CTB$ is similar to ΔBCD by AA similary test	Objective	

Qn		Solution	Content/Succes	s Criteria
	(ii)	$\frac{CT}{BC} = \frac{BC}{DB}$ (corresponding sides of similar triangles) $CT = \frac{BC}{DB} \times BC$ $CT = \frac{x}{DB} \times BC$	I can use corresponding similar triangles unknown Content	ratios of sides of s to solve
		$CI = - \times x$ y	Context	M
		$=\frac{x^2}{y}$	Response Strategy	taught
		У	Assessment Objective	AO2

Qn	Qn		Solution	Content/Success	
6	(a)	(i)	modion - 17 min	L know how to	ria rood CEC
U	(a)	(I) (ii)	interquartile = 20 13	and find m	edian and
		(II)	$\frac{1}{2} = \frac{1}{2}$	IOR	
			$= 7 \min$	I know the n	neaning of
				percentile.	
		(iii)	35	Content	L
			number of customers = $\frac{100}{100} \times 60$	Complexity	L
			- 21	Context	L
			-21 From the graph	Response	• 1
			35th percentile = 15 min	Strategy	simple
				Assessment	4.01
				Objective	AOI
	(b)	If 2	20 % waited more than x minutes, then		
		100%	5 - 20% = 80% waited <u>less than or equal to x minutes</u>	I can interpret	t the 'more
				than' CFC.	
		80	460 = 48 customers	Contont	T
		100		Complexity	
				Complexity	L
		From	the graph, $x = 21.5 \min$	Desponse	L
				Strategy	taught
				Assessment	
				Objective	AO1
				Objective	
	(c)	(i)	15+17	I know hov	v to find
	(-)	(-)	median = $\frac{10 + 17}{2}$	median and	IOR for
			-16 min	discrete data.	
		(ii)	-10 mm	Contant	T
		(II)		Content	L
			$=4 \min$	Complexity	L
				Context	L
				Response	taught
				Strategy	
				Assessment	AO1
				Objective	
	(d)	Tha a	ample sizes are not the same	Contant	М
	(u)	The s	ample sizes are not the same.	Complexity	IVI M
		OR		Context	M
				Response	171
		Samr	ble size for restaurant B is not large enough	Strategy	unfamiliar
		~		Assessment	
				Objective	AO3
				C ~JCCL C	

Qn			Solution	Content/Success	
				Criter	ia
7	(a)	(i)	h 5	I can use rat	io of the
			$\frac{1}{h+16} = \sqrt{\frac{125}{125}}$	areas of simila	ar figures
				to solve for un	nknown
			$\frac{h}{1} = \sqrt{\frac{1}{1}}$		
			$h+16 \bigvee 25$	Q	Ŧ
			$h = \frac{1}{2}(h+16)$	Content	L
			$n = \frac{1}{5}(n + 10)$	Complexity	M
			, 1, 16	Context	M
			$n = -n + -\frac{1}{5}$	Response	taught
			4. 16	Strategy	
			$\frac{-h}{5} = \frac{-1}{5}$	Assessment	102
			b = 4 (shown)	Objective	A02
			$\frac{1}{1}$	L can apply the	e formula
		(ii)	Vol. of large pyramid = $\frac{1}{2} \times (125) \times (16+4)$	to find vol	ume of
			3	pyramid	
			$= 833 \frac{1}{2} \text{ cm}^{3}$	Content	L
			3	Complexity	L
			Vol. of small pyramid $= \frac{1}{2} \times (5) \times (4)$	Context	L
			$\frac{1}{3}$	Response	. 1.
			-6^2 cm^3	Strategy	taught
			$-\frac{6}{3}$ cm		
			$1 \sim 1 \sim 1 \sim 2$		
			Vol. of frustum = $833 - 6 - 3$	Assessment	AO1
			2	Objective	
			$= 826\frac{-}{3}$		
		(iii)	$(1)^3$	I can apply	ratio of
			% removed = $\left \frac{4}{20}\right \times 100$	volumes of	similar
			(20)	pyramid to	o find
			$=\frac{1}{1} \times 100$	percentage	
			125	Content	L
			$-\frac{4}{96}$ / 0.8%	Complexity	L
				Context	М
				Response	simple
				Strategy	simple
				Assessment	AO1
				Objective	1101
	(b)		$\frac{1}{2}\pi(3r)^2h$	I know how	to find
		Volu	$\frac{1}{2} \frac{3}{2} \frac{3}$	unknown	volume
		Volu	time of cone $B = 1_{\pi(2r)^2 h}$	when figures	are not
			$\frac{-\pi(2r)}{3}$ n	Similar	T
		Volu	ime of cone A 9	Complexity	
				Context	IVI M
			2 TO T 0	Dosponso	171
		Volu	me of cone $A = \frac{2}{4} \times 240$	Strategy	taught
			4 5 40 cm ³	Assessment	
			$= 540 \text{ cm}^{-1}$	Ohiective	AO2
				J	

Qn		Solution		Content/Success Criteria	
8	(a)	(i)	Since $\overrightarrow{AB} / / \overrightarrow{CD}$, $n \begin{pmatrix} -3\\ 9 \end{pmatrix} = \begin{pmatrix} d\\ 4 \end{pmatrix}$ (-3n) (d)	I can use scalar multiples to find unknown given parallel vectors.	
			$\begin{vmatrix} 0n\\ 0n \end{vmatrix} = \begin{vmatrix} n\\ 4 \end{vmatrix}$	Content	L
			(9n) (4)	Complexity	М
			9n = 4 and $d = -3n$	Context	М
			$n = \frac{4}{9}$ and $d = -3\left(\frac{4}{9}\right)$	Response Strategy	Simple
			$d = -\frac{4}{3}$	Assessment Objective	AO2
		(ii)	$\overrightarrow{AC} = \overrightarrow{AB} + \overrightarrow{BC}$ $\longrightarrow (-3) (2)$	I can find the vectors	magnitude of
			$AC = \begin{vmatrix} 0 \\ 0 \end{vmatrix} + \begin{vmatrix} 2 \\ 5 \end{vmatrix}$	Content	М
			(\mathbf{y}) (\mathbf{y})	Complexity	L
				Context	L
			(14)	Response Strategy	Simple
			$=\sqrt{197}$ $= 14.0 \text{ unit}$	Assessment Objective	AO2
	(b)	(i)	$\overrightarrow{RM} = \overrightarrow{PM} - \overrightarrow{PR}$ $= \frac{1}{2}\mathbf{a} - \mathbf{b}$	I can express a form of 2 othe	a vector in the er vectors.
			$\overrightarrow{PS} = \overrightarrow{PR} + \overrightarrow{RS}$	Content	М
			(1)	Complexity	Н
			$= \mathbf{b} + k \left(\frac{-\mathbf{a} - \mathbf{b}}{2} \right)$	Context	Н
			$=\mathbf{b}+\frac{1}{2}k\mathbf{a}-k\mathbf{b}$	Response Strategy	Unfamiliar
			$= \frac{1}{2}k\mathbf{a} + (1-k)\mathbf{b}$ (there should only be one a	Assessment Objective	AO3
		(ii)	α one D in the linal answer)	I can express	a vector in the
		(11)	QK = PR - PQ	form of 2 othe	er vectors
			$= \mathbf{b} - \mathbf{a}$	Content	M
			PT = PQ + QT	Complexity	Н
			$= \mathbf{a} + h(\mathbf{b} - \mathbf{a})$	Context	Н
			$= \mathbf{a} + h\mathbf{b} - h\mathbf{a}$	Response	Unfamiliar
			$= (1-h)\mathbf{a} + h\mathbf{b}$ (there should only be one \mathbf{a}	Strategy	Cinamina
			& one b in the final answer)	Assessment Objective	AO3

Qn	Solu	tion	Content/Success Criteria	
	(iii)	Since <i>P</i> , <i>S</i> and <i>T</i> are collinear,	I know that for c	ollinear point,
		1.	the ratio of the sc	alar multiples
		$\frac{-k}{2}$ $1-k$	of 2 parallel lines	are equal.
		$\frac{2}{1-h} = \frac{1}{h}$	Content	Μ
		$\begin{pmatrix} 1 & n \\ 1 \end{pmatrix}$	Complexity	Н
		$\left \frac{1}{2}k \right h = (1-h)(1-k)$	Context	Н
		(2)	Response	Unfomilior
		$\frac{1}{-hk} = 1 - h - k + hk$	Strategy	Unrammai
		$2^{hh} = 2 - 2h - 2k + 2hk$ $2h + 2k = hk + 2$ $2(h + k) = hk + 2 \text{ (shown)}$	Assessment Objective	AO3
	(iv)	$\frac{\left \overline{PS}\right }{\left \overline{PT}\right } = \frac{\frac{1}{2}\left(\frac{4}{5}\right)}{1-\frac{1}{2}} = \frac{3}{5}$	I can find the rasegments using ve	atio of 2 line ectors.
		3	Content	М
		PS : ST = 3 : 5-3	Complexity	L
		PS : SI = 3 : 2	Context	L
			Response	Simple
			Strategy	Simple
			Assessment Objective	AO2

Qn		Solution	Content/Success Criteria	
9	(a)	Area = 11×17	I can convert inches to	
		=187 inch ²	metres	
		$=187 \times 2.54^{2} \text{ cm}^{2}$	Content	L
		1206 4492	Complexity	L
		$=\frac{1200.1192}{100^2}$ m ²	Context	L
		100	Response	
		$= 0.12064492 \text{ m}^2$	Strategy	routine
		$= 0.121 \text{ m}^2$	Assessment	4.01
			Objective	AOI
	(b)	Total area of 1200 bulletin posters $= 1200 \times 0.12064492$	I can calculate the cost	
		$=144.774 \text{ m}^2$	Content	L
		Since the area $> 120 \text{ m}^2$, there is an additional 5% charge.	Complexity	М
			Context	М
		T + 1 + 2 1200 + ⁵ - 2 1200	Response	tonalit
		$1 \text{ otal } \cos t = 2 \times 1200 + \frac{100}{100} \times 2 \times 1200$	Strategy	taugni
		= \$2520	Assessment	102
		\$ -	Objective	AO2
	(c)	Let the time taken by the new printer to print 1 bulletin	I can solve pro	blem using
		posters be t.	various heurist	ics
		The time taken by the old printer to print 1 bulletin posters	Content	Μ
		will be $t + 15$.	Complexity	Н
			Context	Н
		$6 \times 60 \times 60 + 6 \times 60 \times 60 = 1200$	Response	c '1'
		$\frac{t}{t} + \frac{t}{t+15} - 1200$	Strategy	unfamiliar
		21600(t+15) + 21600t	Assessment	AO2 /
		$\frac{1}{t(t+15)} = 1200$	Objective	AO3
		21600(t+15) + 21600t - 1200t(t+15)		
		21600(t+13)+21600t=1200t(t+13)		
		21600t + 324000 + 21600t = 1200t + 18000t		
		$1200t^2 - 25200t - 324000 = 0$		
		$t^2 - 21t - 270 = 0$		
		t = 30 or -9 (reject)		
		Number of posters printed by the old printer $=$ 21600		
		Number of posters printed by the old printer $-\frac{30+15}{30+15}$		
		= 480		
		Total area printed by old printer = 480×0.21064 m ²		
		-57.91 m^2		
		- 57.91 m		
		Since the older printer only printed 57.9 m ² < 60 m ² . It will		
		need to be serviced.		
		To print an area of $60m^2$, printer must print		
		60		
		$\frac{60}{0.12064492}$ = 497.33 posters.		
0	R	0.1200++92		
		Since the older printer only printed 480 posters < 405.86		
		since the order printer only printed 400 posters < 495.00		
L		posicio, il will ficcu io de selviceu.		