1	(a)(i)	42.25	
		$\frac{1}{2}at^2 = s - ut$	
	(ii)	$\frac{2}{2(s-ut)}$	
		$a = \frac{2(3-u)}{t^2}$	
	(b)	(x-4)(2x-1)=9	
		$2x^2 - x - 8x + 4 = 9$	
		$2x^2 - 9x - 5 = 0$	
		(2x+1)(x-5) = 0	
		$x = -\frac{1}{2}$ or $x = 5$	
	+	8x - 6y = 36	
		18x + 6y = 3	
	(c)	$x = \frac{3}{2}$	
		2	
		<i>y</i> 4	
		In triangle <i>CFD</i> and triangle <i>BFA</i> ,	
2	(a)(i)	Angle CDF = angle BAF (angle in the same segment) Angle ABF = angle DCF (angle in the same segment)	
-	(4)(1)	Angle CFD = angle BFA (Vert. opp angles)	
		By AA similarity test, the triangles are similar.	
		$BC = 10 \tan 48$	
	(ii)	1	
		$\frac{1}{2} \times 10 \times 11.106$	
		$= 55.5 \text{cm}^2$	
	(b)(f)	radius = $\frac{60}{100} \times 21.5 + 8(2.54) = 33.22$	
	(D)(I)	100 circumference= $2 \times \pi \times 33.22 = 208.727$ cm=2.087m or 2.09m	
	(ii)	$2.087 \times 50 = 104.35 = 104$ m (to 3 sig fig)	
3	(a)	160	
	(b)	All 7 points plotted	
		Smooth curve through plotted points.	



	(h)	$TA = 25000 \left(1 + \frac{1.6}{100}\right)^5$	
	(Ø)	$= \frac{1}{2} \frac{1}{1005.03}$ Total interest $= \frac{27065.03}{2} \frac{25000}{2}$	
		= \$2065.03	
	(c)(i)	London Hotel $\pounds 160=S\$271.19$ Berlin Hotel $160 \notin =S\$249.60$ The hotel in London is more expensive because It costs more at S\\$271.19>a stay in Berlin Hotel at S\\$249.60.	
		3 nights in London= $271.19 \times 3 = 813.57$	
	(ii)	Total = $2061.57 \times \frac{103.35}{100}$	
		= 2130 (correct to 10 dollars)	
6	(a)(i)	$AB = \begin{pmatrix} -4 \end{pmatrix}$	
Ŭ		$\begin{vmatrix} X X \\ A B \end{vmatrix} = 5$ units	
	(ii)	$\frac{k}{9} = \frac{-4}{3}$ $k = -12$	
	(b)(i)	a-b	
	(a)	3,	
	(b)	$\frac{5}{5}(2a+b)$	
		$a-b+\frac{3}{5}(2a+b)$	
	(c)	$\frac{11}{5}a - \frac{2}{5}b$	
		$CD = \frac{2}{3}BC$	
	(ii)	$\begin{vmatrix} \overrightarrow{CD} \\ \overrightarrow{CD} \end{vmatrix} = \frac{2}{3} \begin{vmatrix} \overrightarrow{BC} \\ \overrightarrow{BC} \end{vmatrix}$	
		<i>B</i> , <i>C</i> and <i>D</i> lie on a straight line.	
	(iii)	The two triangles are similar.	

	(iv)	$\frac{\frac{1}{2} \times BC \times h}{\frac{1}{2}} = \frac{3}{2}$	
	()	$\left \frac{1}{2} \times CD \times h \right ^2$	
_		1	
7	(a)(1)		
	(ii)	<u> 1 </u>	
		<u>x-4</u>	
		$\left \frac{6}{6} + \frac{6}{100} \right = 1$	
		$\begin{array}{c} x x-4 \\ 2x-4 \end{array}$	
	(b)	$\left \frac{2x-4}{x(x-4)} \right = \frac{1}{6}$	
		$\lambda(\lambda - \tau) = 0$	
		$x^2 - 4x = 12x - 24$	
		$x^2 - 16x + 24 = 0$	
		$x = \frac{16 \pm \sqrt{16^2 - 4(24)}}{16^2 - 4(24)}$	
	(C)(1)	$=\frac{16\pm\sqrt{160}}{160}$	
		x = 14.32 or $x = 1.68x = 1.68$ will make time taken to be negative for Tap	
	(ii)	B	
		14.32 - 4 = 10.324h	
	(d)	=10h19 mins	
		$\angle a = 360^{\circ} - 260^{\circ} = 100^{\circ}$	
8	(a)	$\angle b = 80^{\circ}$ (co-interior angles, parallel north lines)	
		$\angle ABC = 210^\circ - 80^\circ = 130^\circ$	
		$AC = \sqrt{75^2 + 110^2 - 2(75)(110)\cos 130^\circ}$	
	(b)(i)	=168.318	
		=168m	
		$\sin a \sin 130^{\circ}$	
	(ii)	$\overline{110}^{-1}\overline{168.318}$	
	(11)	$\angle a = 30.0^{\circ}$	
		$30^{\circ} + 30^{\circ} = 060.0^{\circ}$	
		$d = 75\sin 30.04^{\circ}$	
		= 37.545m	
	(c)	$\tan \theta = \frac{55}{2}$	
		37.545	
		$\theta = 55.7^{\circ}$	

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9	(a)	Moon Hub 42.90+(16.05x30)+(10.70x2) \$(42.90+4.815+21.4)=\$69.12 SingCom 56.61+(8.60x2) \$(56.61+17.20)=\$73.81 Hence Owen should use Moon Hub as it cost less at	
		\$69.12.	
	(b)	SingCom \$(73.81+56.61+38.89) \$(73.81+56.61+38.89)x0.85 =\$143.91 MoonHub \$(69.12+42.90+39.90) =\$151.92 Since SingCom cost < MoonHub cost, choose Singcom.	

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