Marking Scheme
2022 Prelim Exam_4EX_AM P1

Qn.	Solutions	Marks
1(a)	$R=9(-1)^3-26(-1)^2+3(-1)+14$ $=-24$	B1
1(b)	$f(a)=g(a)$ $a^3b-5a^2+2a+4=a^3b+6a-8$ $-5a^2-4a+12=0$ $5a^2+4a-12=0$ $(5a-6)(a+2)=0$ $\Rightarrow \quad a=\frac{6}{5} \quad or \quad a=-2$ $\begin{pmatrix}\text{rejected since}\\ a \text{ is an integer}\end{pmatrix}$ When $a=-2$, factor $=x+2$ $\therefore \; g(-2)=0$ $\quad$ *or use $f(-2)=0$ $-8b-12-8=0$ $b=\frac{20}{-8}$ $=-2\frac{1}{2}$	M1 for equating M1 for correct a values M1 for correct method to find b A1

2(a)	$\frac{dy}{dx}=\frac{(3x-4)(-1)-(2-x)(3)}{(3x-4)^2}$ $=\frac{-3x+4-6+3x}{(3x-4)^2}$ $=-\frac{2}{(3x-4)^2}$	M1 for correct quotient rule A1
2(b)	$2y-16x=3$ $y=8x+\frac{3}{2}$ *Gradient of normal* $=8$ *Gradient of tangent* $=-\frac{1}{8}$ $\Rightarrow\ -\frac{2}{(3x-4)^2}=-\frac{1}{8}$ $16=(3x-4)^2$ $3x-4=4$ *or* $3x-4=-4$ $x=\frac{8}{3}$ *or* $x=0$ $y=-\frac{1}{6}$ $\quad y=-\frac{1}{2}$ *Coordinates* $=\left(\frac{8}{3},-\frac{1}{6}\right)$ *or* $\left(0,-\frac{1}{2}\right)$	 M1 M1 (allow e.c.f) M1 for both correct x values A1 + A1

[Turn over

3(a)	$x^2+ax-2<2(x-1)^2$ $x^2+ax-2<2x^2-4x+2$ $0<x^2-(4+a)x+4$ $x^2-(4+a)x+4>0$ $\Rightarrow\ b^2-4ac<0$ $(4+a)^2-4(1)(4)<0$ $(4+a+4)(4+a-4)<0$ $(8+a)a<0$ $\therefore\ -8<a<0$	**M1** **M1** **M1 for correct factorization** **A1**
3(b)	$\frac{dy}{dx}=6x^2+2(b+1)x-1$ *For stationary pts,* $\frac{dy}{dx}=0$ $\Rightarrow\ 6x^2+2(b+1)x-1=0$ *Now, discriminant* $=4(b+1)^2-4(6)(-1)$ $=4(b+1)^2+24$ *Since* $4(b+1)^2+24>0$ *for all real values of* b, *the curve will have 2 distinct stationary points.*	**M1** **M1** **M1** **A1**
4(a)(i) **4(a)(ii)**	$0\le\cos^{-1}x\le\pi$ (*or* $180°$) $y>1,\quad y<-1$	**B1** **B1**
4(b)(i) **4(b)(ii)**	$\lvert a\rvert=\frac{14}{2}=7$ $a=-7$ $b=\frac{2\pi}{\left(\frac{\pi}{2}\right)}=4$ $c=9-7=2$ $p-\frac{\pi}{4}=\frac{\pi}{4}-q$ $p+q=\frac{\pi}{2}$	**B1** **B1** **B1** **M1** **A1**

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5(a)	*When* $t=0, \quad N=N_0$ *When* $t=15, \quad N=3N_0$ $\Rightarrow \quad 3N_0 = N_0\left(3^{15k}\right)$ $\Rightarrow \quad 3^1 = 3^{15k}$ $\Rightarrow \quad k=\frac{1}{15}$	 **M1** **M1** **A1**
5(b)	$\log_3 x \quad + \quad \log_3 25 \quad = \quad \frac{\log_3 x}{3}$ $\log_3 25x = \log_3 x^{\frac{1}{3}}$ $\Rightarrow \quad 25x = x^{\frac{1}{3}}$ $\Rightarrow \quad x^{\frac{2}{3}} = \frac{1}{25}$ $\Rightarrow \quad x = \frac{1}{5^3}$ $\Rightarrow \quad x = 5^{-3}$ $\therefore \quad m=-3$ OR $\log_3 x \quad + \quad 2\log_3 5 \quad = \quad \frac{\log_3 x}{3}$ $3\log_3 x \quad + \quad 6\log_3 5 \quad = \quad \log_3 x$ $2\log_3 x = -6\log_3 5$ $\log_3 x = -3\log_3 5$ $\log_3 x = \log_3 5^{-3}$ $\Rightarrow \quad x=5^{-3}$ $\therefore \quad m=-3$	**M1 for change of base** **M1 for product law** **M1** **A1** **M1 for change of base** **M1** **M1** **A1**

[Turn over

6(i)	$x^2-2x-24\neq 0$ $(x-6)(x+4)\neq 0$ *Hence,* $x\neq 6$ *or* $x\neq -4$	**M1 for factorization** **A1**
6(ii)	$\int_8^n \frac{x-6}{(x-6)(x+4)}\,dx = \ln\frac{4}{3}$ $\int_8^n \frac{1}{x+4}\,dx = \ln\frac{4}{3}$ $\left[\ln(x+4)\right]_8^n = \ln\frac{4}{3}$ $\ln(n+4)-\ln 12 = \ln\frac{4}{3}$ $\ln\left(\frac{n+4}{12}\right) = \ln\frac{4}{3}$ $\Rightarrow \frac{n+4}{12}=\frac{4\times 4}{3\times 4}$ $\Rightarrow n+4=16$ $\Rightarrow n=12$	**M1 for simplifying** **M1 for correct integration** **M1** **A1**

[Turn over

7(i)	$\pi r(4r) + \pi r^2 + 2\pi rh = 300$ $5\pi r^2 + 2\pi rh = 300$ $h = \frac{1}{2\pi r}\left(300 - 5\pi r^2\right)$ *or accept* $\frac{150}{\pi r} - \frac{5r}{2}$	**M1** **A1**
7(ii)	$V = \frac{1}{3}\pi r^2\left(r\sqrt{15}\right) + \pi r^2 h$ $= \frac{\sqrt{15}}{3}\pi r^3 + \pi r^2\left(\frac{1}{2\pi r}\right)\left(300 - 5\pi r^2\right)$ $= \frac{\sqrt{15}}{3}\pi r^3 + 150r - \frac{5}{2}\pi r^3$ $= 150r + \left(\frac{\sqrt{15}}{3} - \frac{5}{2}\right)\pi r^3$ (*shown*)	**M1 for finding height of cone, $r\sqrt{15}$** **M1 for substituting h** **A1**
7(iii)	$\frac{dV}{dr} = 150 + 3\pi r^2\left(\frac{\sqrt{15}}{3} - \frac{5}{2}\right)$ *For stationary value of V*, $\frac{dV}{dr} = 0$. $\Rightarrow 150 + 3\pi r^2\left(\frac{\sqrt{15}}{3} - \frac{5}{2}\right) = 0$ $\Rightarrow r^2 = \frac{-150}{3\pi\left(\frac{\sqrt{15}}{3} - \frac{5}{2}\right)}$ $= 13.16412$ $\Rightarrow r = 3.62824\ cm$ *When* $r = 3.62824$, $V = 362.824\ cm^3$ $\approx 363\ cm^3$ *Now*, $\frac{d^2V}{dr^2} = 6\pi r\left(\frac{\sqrt{15}}{3} - \frac{5}{2}\right) = -82.6848 < 0$ $\Rightarrow$ *V is a maximum.*	**M1 for correct differentiation** **M1 for correct r value** **A1 for correct V** **M1 for finding 2nd derivative** **A1**

[Turn over

8(a)	$LHS=\dfrac{(\cos A+\sin A)(\cos A+\sin A)}{\cos^2 A-\sin^2 A}$ $=\dfrac{\cos^2 A+\sin^2 A+2\sin A\cos A}{\cos 2A}$ $=\dfrac{1+\sin 2A}{\cos 2A}$ $=\sec 2A+\tan 2A=RHS \quad (proven)$	**M1 for multiplying the conjugate** **M1 for either one of the double-angled formula** **A1**
8(b)(i)	$y=\int \cos 2\theta-3\sin 2\theta \quad d\theta$ $=\frac{1}{2}\sin 2\theta+\frac{3}{2}\cos 2\theta+c$ $When\ \theta=\frac{\pi}{2},\quad y=-\frac{1}{2}.$ $\therefore\quad -\frac{1}{2}=\frac{1}{2}\sin\pi+\frac{3}{2}\cos\pi+c$ $\Rightarrow\quad -\frac{1}{2}=-\frac{3}{2}+c$ $\Rightarrow\quad c=1$ $Hence,\quad y=\frac{1}{2}\sin 2\theta+\frac{3}{2}\cos 2\theta+1$	**M1** **M1 for finding *c*** **A1**
8(b)(ii)	*For turning pts,* $f'(\theta)=0.$ $\Rightarrow\quad \cos 2\theta-3\sin 2\theta=0$ $\Rightarrow\quad \tan 2\theta=\frac{1}{3}$ $(basic\quad =0.321751)$ $2\theta=0.321751,\quad 3.463344$ $\theta=0.160876,\quad 1.731672$ $\therefore\ y=2.58,\quad -0.581$ *Coordinates of turning pts are* $(0.161,\ 2.58)$ *and* $(1.73,\ -0.581)$	**M1** **M1 for correct values of θ** **A1 + A1**

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9(a)(i)	$(2-3x)^5 = 2^5 + 5(2^4)(-3x) + 10(2^3)(-3x)^2 + \ldots$ $\approx 32 - 240x + 720x^2$	**M1** **A1**
9(a)(ii)	$(1-4x^2)(32-240x+720x^2)$ $Coeff\ of\ x^2 = 720 - 4(32)$ $= 592$	**M1** **A1**
9(b)	$(r+1)term = {}^{12}C_r\left(\frac{k}{x^3}\right)^{12-r} x^r$ $= {}^{12}C_r \,.\, k^{12-r} \,.\, x^{3r-36+r}$ $= {}^{12}C_r \,.\, k^{12-r} \,.\, x^{4r-36}$ $For\ x^0,\quad 4r - 36 = 0$ $r = 9$ $\Rightarrow \quad {}^{12}C_9\, k^3 = 27500$ $\Rightarrow \quad k^3 = 125$ $\Rightarrow \quad k = 5 \quad (shown)$	 **M1** **M1 for finding *r*** **M1 for equating** **A1**

[Turn over

10(i)	$A = 6x^2$ $V = x^3$ $\frac{dA}{dx} = 12x$ $\frac{dV}{dx} = 3x^2$ $\frac{dA}{dt} = \frac{dA}{dx}\cdot\frac{dx}{dt}$ $\frac{dV}{dt} = \frac{dV}{dx}\cdot\frac{dx}{dt}$ $-10 = (12x)\frac{dx}{dt}$ $-45 = (3x^2)\frac{dx}{dt}$ $\frac{dx}{dt} = -\frac{5}{6x}$ $\frac{dx}{dt} = -\frac{15}{x^2}$ $\Rightarrow \quad -\frac{5}{6x} = -\frac{15}{x^2}$ $\Rightarrow \quad 5x^2 = 90x$ $\Rightarrow \quad x(x-18) = 0$ $\Rightarrow \quad x = 0\,(rejected) \quad or \quad x = 18\,mm$	**M1 for either of the correct chain rule** **M1 + M1** **M1 for equating** **A1**
10(ii)	$\frac{dx}{dt} = -\frac{5}{6\times 18} = -\frac{5}{108}$	**B1**
11(i)	$48 + 24\sqrt{3} = \left(a + 2\sqrt{3}\right)^2$ $= a^2 + 4a\sqrt{3} + 12$ $\Rightarrow \quad 24 = 4a$ $\Rightarrow \quad a = 6$	**M1 for expansion** **A1**
11(ii)	$6 + 2\sqrt{3}$	**B1**
11(iii)	$\frac{1}{3}\left(48 + 24\sqrt{3}\right)h = 50 + 20\sqrt{3}$ $h = \frac{50 + 20\sqrt{3}}{16 + 8\sqrt{3}} \times \frac{16 - 8\sqrt{3}}{16 - 8\sqrt{3}}$ $= \frac{800 - 80\sqrt{3} - 480}{64}$ $= \frac{320 - 80\sqrt{3}}{64}$ $= 5 - \frac{5}{4}\sqrt{3}$	**M1 for correct volume formula** **M1 for multiplying conjugate surd** **A1**

[Turn over

12(i)	*When* $v=0$, $\frac{2}{5}e^{3t}=6e^{\frac{1}{2}-t}$ $e^{4t-\frac{1}{2}}=15$ $4t-\frac{1}{2}=\ln 15$ $t=\frac{1}{4}\left(\frac{1}{2}+\ln 15\right)$ $=\frac{1}{8}(1+2\ln 15)$ (*shown*)	M1 A1
12(ii)	$a=\frac{6}{5}e^{3t}+6e^{\frac{1}{2}-t}$ *When* $t=\frac{1}{8}(1+2\ln 15)\approx 0.802013$ sec, $a=17.74389\approx 17.7\ m/s^2$	M1 A1
12(iii)	$s=\int \frac{2}{5}e^{3t}-6e^{\frac{1}{2}-t}\ \mathrm{d}t$ $=\frac{2}{15}e^{3t}\ +\ 6e^{\frac{1}{2}-t}\ +\ c$ *When* $t=0$, $s=0$. $\Rightarrow\ 0=\frac{2}{15}+6e^{\frac{1}{2}}+c$ $\Rightarrow\ c=-\left(\frac{2}{15}+6e^{\frac{1}{2}}\right)$ *When* $t=\frac{1}{8}(1+2\ln 15)\approx 0.802013$ sec, *Displacement* $OA=-4.111031$ *Distance* $OA=4.11\ m$	M1 M1 M1 A1
12(iv)	*When* $t=1$, $s=-3.71\ m$ *When* $t=2$, $s=45.1\ m$ During the 2nd second, the displacement changes from negative to positive. Hence, the particle will pass through point O again during the 2nd second.	**M1 for finding correct displacement at either t = 1 or t = 2** **A1 for correct explanation**

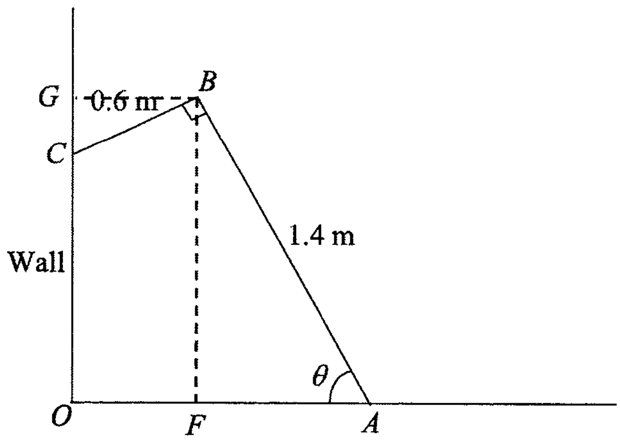
[Turn over

2022 4E5N Prelim Amath Paper 2 MS

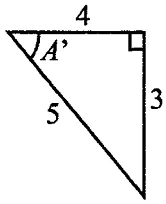
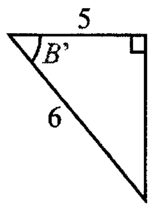
Qn	Solution	Marking Scheme
1	$5+8x-2x^2=-2(x^2-4x)+5$	M1 for factorizing -2
	$=-2\left[(x-2)^2-4\right]+5$	M1 for +4 and −4 or equivalent
	$=-2(x-2)^2+13$	A1
	t.p. is (2 , 13)	A1
2	$\frac{4x^2+5x-11}{(x-2)(x^2+1)}=\frac{A}{5(x-2)}+\frac{Bx+C}{5(x^2+1)}$	
	$4x^2+5x-11=A(x^2+1)+(Bx+C)(x-2)$	M1 for "getting rid" of denominator
	Let $x=2$: $15=5A$	M1 for substituting values or correct expansion
	$A=3$	B1
	Let $x=0$: $-11=3-2C$	
	$C=7$	B1 (can give ecf)
	Let $x=1$: $-2=6+(B+7)(-1)$	
	$B=1$	B1 (can give ecf)
	$\frac{4x^2+5x-11}{(x-2)(x^2+1)}=\frac{3}{x-2}+\frac{x+7}{x^2+1}$	A1 (no ecf)
3i	$OB=OD$	B1
	$OE=OE$ (common side)	B1
	$\angle OBE=\angle ODE$ $(=90\ )$	B1
	$BE=DE$ (Pythagoras' Thm)	
	$\Delta OBE\equiv\Delta ODE$ (SSS or RHS)	A1 must include SSS or RHS
3ii	from (i) $\angle BOE=\angle DOE$	B1
	$\angle BAF=\frac{1}{2}\angle BOD$ (angle at centre = $2\times$ angle at circumference)	M1 (must have reason)
	$=\angle BOE$	
	$\angle ABF=\angle OBF$ (common angle)	
	ΔOBE is similar to ΔABF (AA)	M1 for conclusion
	$\frac{BE}{BF}=\frac{OB}{AB}$	
	$\frac{BE}{BF}=\frac{1}{2}$	
	$BE=\frac{1}{2}BF$	A1 for either
	There E is the midpoint of BF	(A1 for either)

4i	$\lg N$ | 2.298 | 3.099 | 3.899 | 4.699 | 5.499 See pdf file for graph	B1 values of $\lg N$ M1 for scale of axes P1 points plotted correctly and line passes through all points
4ii	$N = AB^t$ $\lg N = \lg\left(AB^t\right)$ $\lg N = (\lg B)t + \lg A$ $\lg A = 1.5$ (allow 1.4 to 1.6) $A = 31.6$ (allow 25.1 to 39.8) $\lg B = \frac{5.5-1.5}{5-0}$ $= \frac{4}{5}$ (allow 0.7 to 0.9) $B = 6.31$ (allow 5.01 to 7.94)	 M1 addition or power law A1 M1 A1
5i	$Grad_{AM} = \frac{3-6}{3-2}$ $= -3$ $Grad_{BC} = \frac{1}{3}$ equation of BC: $y-3 = \frac{1}{3}(x-3)$ $y = \frac{1}{3}x+2$	 B1 M1 for using the formula of perpendicular lines A1
5ii	$\frac{1}{3}x+2 = 2x+3$ $\frac{5}{3}x = -1$ $x = -\frac{3}{5}$ $y = \frac{9}{5}$ $B(-\frac{3}{5}, \frac{9}{5})$	M1 A1

5iii	Let C be (x, y) $\frac{x-\frac{3}{5}}{2}=3$ or $\frac{y+\frac{9}{5}}{2}=3$ $x=\frac{33}{5}$ $y=\frac{21}{5}$ $C\left(\frac{33}{5},\frac{21}{5}\right)$ or $\left(6\frac{3}{5},4\frac{1}{5}\right)$ or $(6.6,4.2)$	M1 for either equation A1
5iv	Area of $\Delta OAM=\frac{1}{2}\begin{vmatrix}0 & 3 & 2 & 0\\ 0 & 3 & 6 & 0\end{vmatrix}$ $=\frac{1}{2}\lvert 18-6\rvert$ $=6$ units^2	 M1 A1
6ai	Centre $(-3, 5)$ $r=\sqrt{(-3-0)^2+(5-1)^2}$ $=5$	B1 M1 A1
6aii	Since the y-coordinate of centre = 5 and radius = 5, the **x-axis must be tangent** to the circle but it is **not touching** the circle at all	 A1 A1
6bi	$L(7, 10)$ $r=\sqrt{7^2+10^2-113}$ $=6$	B1 M1 A1
6bii	$LM=\sqrt{(7-2)^2+(10-2)^2}$ $=\sqrt{89}$ $\angle LMN=\sin^{-1}\left(\frac{6}{\sqrt{89}}\right)$ $=39.5$	M1 M1 A1
7a	$y=\ln\left[\frac{(x-1)^{\frac{1}{2}}}{x+2}\right]$ $=\ln(x-1)^{\frac{1}{2}}-\ln(x+2)$ $=\frac{1}{2}\ln(x-1)-\ln(x+2)$ $\frac{dy}{dx}=\frac{1}{2(x-1)}-\frac{1}{x+2}$	 M1 for "minus" law M1 for power law A1

7bi	$y=\dfrac{x}{(3x+2)^2}$ $\dfrac{dy}{dx}=\dfrac{(3x+2)^2-x(2)(3x+2)(3)}{(3x+2)^4}$ $=\dfrac{(3x+2)[(3x+2)-6x]}{(3x+2)^4}$ $=\dfrac{2-3x}{(3x+2)^3}$	M1 for quotient rule M1 for chain rule M1 for factorizing A1
7bii	$\int_0^1 \dfrac{2-3x}{(3x+2)^3}\,dx=\left[\dfrac{x}{(3x+2)^2}\right]_0^1$ $\int_0^1 \dfrac{2}{(3x+2)^3}+\dfrac{-3x}{(3x+2)^3}\,dx=\dfrac{1}{25}$ $\int_0^1 \dfrac{-3x}{(3x+2)^3}\,dx=\dfrac{1}{25}-\int_0^1 2(3x+2)^{-3}\,dx$ $=\dfrac{1}{25}-\left[-\dfrac{(3x+2)^{-2}}{3}\right]_0^1$ $=\dfrac{1}{25}+\dfrac{1}{3}\left[\dfrac{1}{25}-\dfrac{1}{4}\right]$ $=-\dfrac{3}{100}$	M1 M1 for splitting the integral B1 for $\dfrac{1}{25}$ A1
8i		

	$BF = 1.4\sin\theta$ $BG = 0.6\cos\theta$ $OC = 1.4\sin\theta - 0.6\cos\theta$	M1 (either) A1
8ii	$R\sin(\theta-\alpha) = R\sin\theta\cos\alpha - R\cos\theta\sin\alpha$ $R\cos\alpha = 1.4$ $R\sin\alpha = 0.6$ $R = \sqrt{1.4^2 + 0.6^2}$ $= \sqrt{2.32}$ or $\frac{\sqrt{58}}{5}$ $\alpha = \tan^{-1}\frac{0.6}{1.4}$ $= 23.19$ $OC = \sqrt{2.32}\sin(\theta - 23.19)$	M1 A1 M1 (or $\tan\alpha = \frac{0.6}{1.4}$) A1
8iii	$\sqrt{2.32}\sin(\theta-23.19) = 1$ $\sin(\theta - 23.19) = \frac{1}{\sqrt{2.32}}$ basic angle $= 41.03$ $\theta - 23.19 = 41.03$ $\theta = 64.2$	M1 for basic angle A1
8iv	Min $OC = 0$ AC is horizontal (or equivalent) $\theta - 23.19 = 0$ $\theta = 23.2$	B1 A1
9ai	$LHS = \sin 2\theta - \tan\theta\cos 2\theta$ $= 2\sin\theta\cos\theta - \tan\theta(2\cos^2\theta - 1)$ $= 2\sin\theta\cos\theta - 2\sin\theta\cos\theta + \tan\theta$ $= \tan\theta$ $= RHS$	M1 for double angle formula M1 for simplification A1

9aii	$\tan\theta = \frac{3}{\tan\theta}$ $\tan^2\theta = 3$ $\tan\theta = \pm\sqrt{3}$ $\alpha = \tan^{-1}\sqrt{3}$ $= \frac{\pi}{3}$ $\theta = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ or $1.04, 2.09, 4.19, 5.24$	M1 M1 method to find basic angle M1 showed signs to find solutions in correct quadrants A1 for all four solutions
9bi	  A and B are in 4th quadrant $\cos(A-B) = \cos A\cos B + \sin A\sin B$ $= \left(\frac{4}{5}\right)\left(\frac{5}{6}\right) + \left(-\frac{3}{5}\right)\left(-\frac{\sqrt{11}}{6}\right)$ $= \frac{2}{3} + \frac{\sqrt{11}}{10}$ or $\frac{20+3\sqrt{11}}{30}$	B1 for either diagram or evidence of finding the missing side B1 substituting the correct values A1
9bii	$\cos B = 1 - 2\sin^2\frac{B}{2}$ $\sin^2\frac{B}{2} = \frac{1}{2}(1-\cos B)$ $= \frac{1}{12}$ $\sin\frac{B}{2} = \frac{1}{\sqrt{12}}$	M1 for changing the subject of formula A1, no marks if $-\frac{1}{\sqrt{12}}$ is not rejected.
10	Find A: $\sqrt{2x-1} = 0$ $x = \frac{1}{2}$ $\left(\frac{1}{2}, 0\right)$	M1 B1

	Find B:	
	$y=(2x-1)^{\frac{1}{2}}$	
	$\frac{dy}{dx}=(2x-1)^{-\frac{1}{2}}$	M1 for differentiation
	$(2x-1)^{-\frac{1}{2}}=\frac{1}{3}$	M1 for equating dydx to gradient
	$2x-1=3$	
	$x=5$	
	$y=3$	
	$(5,3)$	A1
	Gradient of normal $=-3$	B1
	Let C be $(a, 0)$	
	$\frac{0-3}{a-5}=-3$	M1
	$a-5=1$	
	$a=6$	
	$(6,0)$	A1
	Shaded Area $=\int_{\frac{1}{2}}^{5}(2x-1)^{\frac{1}{2}}dx+\frac{1}{2}(1)(3)$	M1 for correct limits M1 for forming the expression for shaded area M1 for integration
	$=\frac{1}{3}\left[(2x-1)^{\frac{3}{2}}\right]_{\frac{1}{2}}^{5}+\frac{3}{2}$	
	$=\frac{1}{3}[27-0]+\frac{3}{2}$	
	$=10.5$	A1

(i) By plotting lg y against x, draw a straight line to represent the above data. [3]