Question number	Scheme	Marks
7.	(a) $(5p-1)(p-2)=0$ $p=\frac{1}{5}$ $p=2$ (b) $5(3^x)^2-11(3^x)+2=0$ $3^x=\frac{1}{5}$ $x\ln 3=\ln 0.2$ $x=\frac{\ln 0.2}{\ln 3}=-1.464...=-1.46$ $3^x=2$ $x\ln 3=\ln 2$ $x=\frac{\ln 2}{\ln 3}=0.6309...=0.631$ (c) $y=5(3^{2x})-6(3^x)=5(3^x)-2$ $5(3^{2x})-11(3^x)+2=0$ $3^x=0.2$ $y=5\times 0.2-2=-1$ $3^x=2$ $y=5\times 2-2=8$ Points are $(-1.46,-1)$ and $(0.631,8)$	M1 A1 M1 M1A1 A1 M1 M1 A1 B1ft (10)
8.	(a) $\frac{y-5}{7-5}=\frac{x-1}{9-1}$ $8(y-5)=2(x-1)$ $4y-20=x-1$ $y=\frac{1}{4}x+\frac{19}{4}$ (b) Grad. of $l=-4$ Midpoint of $AB=(5,6)$ Eqn. of l: $y-6=-4(x-5)$ $(y=-4x+26)$ (c) $x=3$ $q=-4\times -2+6=14$ (d) $y=0$ $x=6\frac{1}{2}$ length $CD=\sqrt{(6\frac{1}{2}-3)^2+14^2}=\sqrt{\frac{7^2}{2^2}+14^2}=\frac{7}{2}\sqrt{17}$ length $AB=\sqrt{(7-5)^2+(9-1)^2}=\sqrt{68}=2\sqrt{17}$ Area of kite $=\frac{1}{2}\times\frac{7}{2}\sqrt{17}\times 2\sqrt{17}=59\frac{1}{2}$ (accept 59.5 provided surds seen) *or* 14 × 8 - ½(9 × 2 + 7 × 6 + 7 × 2½ + 5 × 5½) *or* 2 x 3½ + ½(9 × 2 + 7 × 6 + 7 × 2½ + 5 × 5½)	M1A1 B1ft B1 M1A1 M1A1ft B1ft M1 A1 B1 cao (13)