1	$F=\frac{k}{v^2}$ **or** $Fv^2=k$ oe		3	M1	(NB. Not for $F=\frac{1}{v^2}$) Constant of proportionality must be a symbol such as k	M2 for $6.5=\frac{k}{4^2}$ oe
	$6.5=\frac{k}{4^2}$ **or** $k=6.5\times4^2$ **or** $k=104$			M1	For substitution of F and v into a correct formula	
		$F=\frac{104}{v^2}$		A1	Award 3 marks if $F=\frac{k}{v^2}$ is on the answer line and the value of $k=104$ is found	
						Total 3 marks

2 (a)	$P=\frac{k}{y^2}$		3	M1	oe (the constant term, k, can be any other letter apart from a or P or y)
	eg $a=\frac{k}{4^2}$ **or** $k=16a$			M1	oe
	Correct answer scores full marks (unless from obvious incorrect working)	$P=\frac{16a}{y^2}$		A1	oe eg $P=16ay^{-2}$ or $P=\frac{4^2a}{y^2}$
(b)	$\sqrt{\frac{16a}{4a}}=c\sqrt{a}$ oe eg $\frac{16a}{4a}=c^2a$ or $4a=\frac{16a}{c^2a}$ **or** $4a\times c^2a=16a$ **oe** **or** (when $P=4a$) $y^2=\frac{16a}{4a}$ **or** $y^2=4$ **or** $y=\sqrt{\frac{16a}{4a}}(=2)$ oe		3	M1	ft a correct formula involving the constant term (c used here) and a **or** ft for an expression or value of y^2 or y given for when $P=4a$
	$c=\sqrt{\frac{4}{a}}$ **or** $c=\frac{\pm2}{\sqrt{a}}$ **or** $c=\frac{\pm2\sqrt{a}}{a}$ oe allow the constant term squared eg $c^2=\frac{16a}{4a^2}\left(=\frac{4}{a}\right)$			M1	(implies previous M1) a correct value, in terms of a, for the constant term or the constant term squared – need not be simplified
	Correct answer scores full marks (unless from obvious incorrect working)	$P=\frac{4a^2}{x}$		A1	oe eg $P=\frac{16a}{\frac{4x}{a}}$ or $P=\frac{16a^2}{4x}$
					Total 6 marks

3	$y=\frac{k}{\sqrt{x}}$ or $ky=\frac{1}{\sqrt{x}}$ or $\sqrt{x}=\frac{k}{y}$ oe		3	M1 (NB. Not for $y=\frac{1}{\sqrt{x}}$) Constant of proportionality must be a symbol such as k (Allow c for k for this mark only)		M2 for $c^4=\frac{k}{\sqrt{c^2}}$ oe
	$c^4=\frac{k}{\sqrt{c^2}}$ oe or $k=c^4\times\sqrt{c^2}$ oe			M1 for substitution of x and y into a correct formula		
	Correct answer scores full marks (unless from obvious incorrect working)	$y=\frac{c^5}{\sqrt{x}}$		A1 oe e.g $y=c^5\times\frac{1}{\sqrt{x}}$ Award 3 marks if answer is $y=\frac{k}{\sqrt{x}}$ on the answer line and $k=c^5$ clearly given in the body of working of the script		
						Total 3 marks