$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Question	Guidance	rks AO
$\begin{vmatrix} & = (16+8h+h^{2})+(16-8h+h^{2})-(16-h^{2}) \\ p^{2} = 16+3h^{2} \\ (16+3h^{2})^{\frac{1}{2}} = 4(1+)^{\frac{1}{2}} \\ (16+3h^{2})^{\frac{1}{2}} = 4(1+)^{\frac{1}{2}} \\ (16+3h^{2})^{\frac{1}{2}} = 4(1+)^{\frac{1}{2}} \\ (16+3h^{2})^{\frac{1}{2}} = 1+\frac{1}{2}kh^{2}+ \\ (1+kh^{2})^{\frac{1}{2}} = 1+\frac{1}{2}kh^{2}+ \\ (1+kh^{2})^{\frac{1}{2}} = 1+\frac{1}{2}kh^{2}+ \\+\frac{(\frac{1}{2})(-\frac{1}{2})}{2!}(kh^{2})^{2} \\ (16+3h^{2})^{\frac{1}{2}} \\ (16+3h^{2})^{\frac{1}{2}} = 1+\frac{1}{2}kh^{2}+ \\ (11+kh^{2})^{\frac{1}{2}} = 1+\frac$	2 (a)	Correct application of cosine rule	[1 1.1
p ² = 16 + 3h ² AI 2.24 No at least one line of intermediate working (must have $p^2 =)$ brackets the brackets the working (must have $p^2 =)$ 2 (b) $(16 + 3h^2)^{\frac{1}{2}} = 4(1 +)^{\frac{1}{2}}$ B1 1.1 For reference: $4\left(1 + \frac{3}{16}h^2\right)^{\frac{1}{2}}$ or for $16^{\frac{1}{4}}$ $(1 + kh^2)^{\frac{1}{2}} = 1 + \frac{1}{2}kh^2 +$ M1 1.1 Correct first two terms for their k $k \neq 1$ $ + \frac{(\frac{1}{2})(-\frac{1}{2})}{2!}(kh^2)^2$ A1ft 1.1 Correct third term following through their k SC if cand that $p = 4$ and then so $p^2 = 16 + and \mu$ then and μ then			
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$ \left(16 + 3h^{2} \right)^{\frac{1}{2}} = 4 \left(1 + \right)^{\frac{1}{2}} $ $ \left(16 + 3h^{2} \right)^{\frac{1}{2}} = 4 \left(1 + \right)^{\frac{1}{2}} $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh^{2} \right)^{\frac{1}{2}} = 1 + \frac{1}{2} kh^{2} + $ $ \left(1 + kh$			2]
$(p=)4+\frac{3}{8}h^2-\frac{9}{512}h^4+\dots$ A1ft A1ft A1ft A1ft A1ft A1ft A1ft A1ft	2 (b)	For reference: $4\left(1+\frac{3}{16}h^2\right)^{\frac{1}{2}}$ or for $16^{\frac{1}{2}}(1+)^{\frac{1}{2}}$	1 1.1
$(p=)4 + \frac{3}{8}h^2 - \frac{9}{512}h^4 + \dots$ A1 1.1 $\lambda = \frac{3}{8}, \mu = -\frac{9}{512} \text{ (oe)}$ SC if cand that $p=4$ and then su $p^2 = 16 + 16$ and μ then and μ then		Correct first two terms for their k $k \neq 1$	[1 1.1
$(p=)4 + \frac{3}{8}h^2 - \frac{9}{512}h^4 + \dots$ A1 $1.1 \lambda = \frac{3}{8}, \mu = -\frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and then su} \\ p^2 = 16 + \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = 4 \text{ and } \mu \text{ then } n = \frac{9}{512} \text{ (oe)} \text{that } p = \frac{9}$			lft 1.1
		SC if candidates assume that $p = 4 + \lambda h^2 + \mu h^4$ and then substitute into $p^2 = 16 + 3h^2$ to find λ and μ then B1 for correct λ and B1 for correct μ (so 2/4 max.)	