Q	Working	Answer	Mark	Notes
10	$(AC^2 =)12^2+16^2\,(=144+256=400)$ **or** $(BAC=)\tan^{-1}\left(\frac{12}{16}\right)(=36.8(698...))$ **or** 36.9 **or** $(BCA=)\tan^{-1}\left(\frac{16}{12}\right)(=53.1(301...))$		5	M1 for a correct method using triangle *ABC*
	$(AC=)\sqrt{12^2+16^2}\,(=\sqrt{144+256}=\sqrt{400}=20)$ **or** $(AC=)\frac{16}{\cos"36.8"}(=20)$ **or** $(AC=)\frac{12}{\sin"36.8"}(=20)$ **or** $(AC=)\frac{16}{\sin"53.1"}(=20)$ **or** $(AC=)\frac{12}{\cos"53.1"}(=20)$			M1 for a correct method to find *AC*
	$(BD^2=)(1.5\times"20")^2-16^2(=644)$ **or** $(BD^2=)30^2-16^2\,(=900-256=644)$ **or** $(BAD=)\cos^{-1}\left(\frac{16}{"30"}\right)(=57.7(690...))$ **or** 57.8 **or** $(BDA=)\sin^{-1}\left(\frac{16}{"30"}\right)(=32.2(309...))$ **or** $(BCA=)\sin^{-1}\left(\frac{16}{"20"}\right)(=53.1(301...))$ **and** $\frac{(CD)}{\sin(180-126.9-32.2)}=\frac{"30"}{\sin(180-53.1)}$ oe			M1 for a correct method using triangle to find BD^2 or angle *BAD* or angle *BDA* or for a correct equation for side *CD*
	$(BD=)\sqrt{(1.5\times"20")^2-16^2}$ $(=25.3(771)\ldots)$ **or** $(BD=)\sqrt{30^2-16^2}\,(=\sqrt{900-256}=\sqrt{644}=2\sqrt{161}=25.3(771...))$ **or** $(BD=)16\times\tan"57.7"(=25.3(771...))$ **or** $(BD=)"30"\times\sin"57.7"(=25.3(771...))$ **or** $(BD=)\sqrt{16^2+"30"^2-2\times16\times"30"\times\cos"57.7"}\,(=25.3(771...))$ **or** $(BD=)30\times\cos"32.2"(=25.3(771...))$ **or** $(BD=)\frac{16}{\tan"32.2"}(=25.3(771...))$ **or** $(BD=)\frac{16}{\sin"32.2"}\times\sin"57.7"(=25.3(771...))$ **or** $(CD=)\frac{"30"}{\sin"126.9"}\times\sin"20.9"$ oe			M1 for a correct method to find *BD* or *CD*
	Working not required, so correct answer scores full marks (unless from obvious incorrect working)	13.4		A1 awrt 13.4
				Total 5 marks