

Question Number	Answer	Marks
7		
(a)	Ht. of $\triangle AEB = 3$ cm $PG^2 = 13^2 + 15^2$ $PG = 19.849... = 19.8$ cm	B1 M1A1 (3)
(b)	$AC^2 = 13^2 + 4^2$, $AC = 13.601... = 13.6$ cm	M1,A1 (2)
(c)	$\sin \theta = \frac{13}{19.84}$ or $\cos \theta = \frac{15}{19.84}$ or $\tan \theta = \frac{13}{15}$ $\theta = 40.9^\circ$	M1A1ft A1 (3)
(d)	$\sin \varphi = \frac{13}{13.6}$ or $\cos \varphi = \frac{4}{13.6}$ or $\tan \varphi = \frac{13}{4}$ $\varphi = 72.9$	M1A1ft A1 (3) [11]

Notes

In this question penalise once for failing to round to 3 sf **and** once for failing to round to 0.1°

(a) B1 for height of $\triangle AEB = 3$ (cm)

M1 for correct use of Pythagoras to find PG ie $15^2 + (10 + \text{their ht})^2$

A1cao for $PG = 19.8$ (cm) **must be 3 sf**

(b)

M1 for correct use of Pythagoras, using their height of $\triangle AEB$ (or any other complete method)

A1cao for 13.6(cm) **must be 3 sf unless already penalised**

(c)

M1 for using a trig function to find the correct angle (Alt, use cosine rule)

A1ft for correct numbers in their trig function (or cosine rule), follow through on previously calculated lengths

A1cao for 40.9° **must be to 1 dp**

(d)

M1 for using a trig function to find the correct angle

A1ft for correct numbers in their trig function, follow through on previously calculated lengths

A1cao for 72.9° or 107.1° **must be to 1 dp unless already penalised**