

Q1. (2020)

Q	Answer	Mark	Comments
18	Alternative method 1		
	$\tan 62 = \frac{h}{5}$	M1	oe eg $\tan (90 - 62) = \frac{5}{h}$ or $\frac{h}{\sin 62} = \frac{5}{\sin 28}$ any letter
	$5 \times \tan 62$ or 9.4(0...)	M1dep	oe eg $\frac{5}{\tan 28}$ or $\frac{5}{\sin 28} \times \sin 62$
	$\sin x = \frac{\text{their } 9.4(0...)}{12}$ or $\sin x = [0.78, 0.784]$	M1dep	oe eg $\sin x = \frac{5 \times \tan 62}{12}$ or $\cos x = \frac{\sqrt{12^2 - \text{their } 9.4^2}}{12}$
	[51.536, 51.63]	A1	accept 52 with M3 seen
	Alternative method 2		
	$\left(\frac{5}{\cos 62}\right)^2 - 5^2$ or [88.4, 88.43]	M1	oe
	$\sqrt{\left(\frac{5}{\cos 62}\right)^2 - 5^2}$ or 9.4(0...)	M1dep	oe
	$\sin x = \frac{\text{their } 9.4(0...)}{12}$ or $\sin x = [0.78, 0.784]$	M1dep	oe eg $\cos x = \frac{\sqrt{12^2 - \text{their } 9.4^2}}{12}$
	[51.536, 51.63]	A1	accept 52 with M3 seen
Additional Guidance			
Answer in range with truncation to 51			M1M1M1A1

Q2. (2021)

Q	Answer	Mark	Comments
6	Using these letters for the unknown angles 		
	73	B3	B2 $180 - 110 + 52 - 49$ oe calculation or $h = 107$ or $j = 107$ or $k = 73$ or $g = 49$ and $d = 58$ or $g = 49$ and $e = 70$ or $f = 131$ and $d = 58$ B1 any angle correct (others may be incorrect)
	Additional Guidance		
	Angles will usually be seen on the diagram		
	Angles must be unambiguously linked to the correct position eg 131 seen in working but not on the diagram or in wrong position		B0
	$a = 58$ $b = 70$ $c = 52$ $d = 58$ $e = 70$ $f = 131$ $g = 49$ $h = 107$ $j = 107$ $k = 73$ $m = 131$ $n = 49$ $p = 131$ $q = 70$ $r = 110$ $s = 58$ $t = 122$ $u = 122$		

Q3. (2023)

Q	Answer	Mark	Comments
17	Alternative method 1 Works out AC and uses it in triangle ABC		
	$\cos 37 = \frac{AC}{4}$	M1	oe eg $\sin 53 = \frac{AC}{4}$ allow [0.798, 0.8] for $\cos 37$ or $\sin 53$
	$(AC =) 4 \times \cos 37$ or $(AC =) [3.19, 3.2]$	M1dep	oe eg $(AC =) 4 \times \sin 53$ allow [0.798, 0.8] for $\cos 37$ or $\sin 53$ may be seen on diagram
	$\sin x = \frac{\text{their } [3.19, 3.2]}{9.3}$ or $(x =) \sin^{-1}[0.34, 0.3441]$	M1dep	oe eg $\cos x = \frac{\sqrt{9.3^2 - \text{their } [3.19, 3.2]^2}}{9.3}$ or $(x =) 90 - \cos^{-1}[0.34, 0.3441]$
	[19.87, 20.13]	A1	
	Alternative method 2 Works out angle ADC and uses it in triangle ABD		
	$(\text{angle } ADC =) 90 - 37$ or $(\text{angle } ADC =) 53$	M1	oe eg $(\text{angle } ADC =) 180 - 90 - 37$ may be seen on diagram
	$\frac{\sin x}{4} = \frac{\sin(90 - 37)}{9.3}$	M1dep	oe eg $\frac{4}{\sin x} = \frac{9.3}{\sin 53}$
	$(\sin x =) \frac{\sin(90 - 37)}{9.3} \times 4$ or $(x =) \sin^{-1}[0.34, 0.3441]$	M1dep	oe
	[19.87, 20.13]	A1	

17 cont	Additional Guidance	
	Up to M3 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts	
	Allow any unambiguous notation for angles eg allow B for x	
	Alt 1 Allow any unambiguous notation for AC eg y (condone x if clearly referring to AC)	
	Alt 1 1st M1 must be an equation where AC is the only variable eg $AC^2 + (4 \sin 37)^2 = 4^2$	M1
	Alt 1 A calculation that leads to AC scores M1M1 eg $\sqrt{4^2 - (4 \sin 37)^2}$	M1M1
	Alt 1 3rd M1 must have $\sin x$ (or $\cos x$) as the subject or be a calculation that leads to x	
	Alt 2 53 only marked at angle BAC on diagram	M0

Q4. (2024)

Q	Answer	Mark	Comments
17	$\frac{1}{4}x + 15 + \frac{2}{3}x - 44 = 180$	M1	oe equation
	$\frac{1}{4}x + \frac{2}{3}x = 180 - 15 + 44$ or $3x + 180 + 8x - 528 = 2160$	M1dep	oe equation with terms collected eg $\frac{11}{12}x = 209$ or oe equation with fractions eliminated eg $11x = 2508$
	$(x =) 209 \div \frac{11}{12}$ or $(x =) 228$	M1dep	oe calculation that leads to $(x =) 228$ eg $(x =) 2508 \div 11$ implied by 72 and 108
	72 : 108	A1	oe ratio eg 2 : 3 or 1 : 1.5 or $\frac{2}{3} : 1$
	Additional Guidance		
	Ignore simplification attempt after correct ratio seen eg 72 : 108 in working with answer 36 : 52		M3A1
	Accept [0.66, 0.67] for $\frac{2}{3}$		
	Accept [0.91, 0.92] for $\frac{11}{12}$		
	Accept [1.09, 1.1] for $\frac{12}{11}$		