Assessment Schedule – 2006

Mathematics: Solve right-angled triangle problems (90152)

Evidence Statement

	Criteria	No.	Evidence	Code	Judgement	Sufficiency
Achievement	Solve right-angled triangle problems.	1(a)	AB = $\sqrt{15^2+8^2}$ = 17 metres	**AP**	CAO acceptable. Units not needed. Any correct rounding / truncation accepted. Evidence of BOTH Pythagoras AND trigonometry being used is required.	3 of code **A**, with at least one of each of **AP** and **AT**. **Replacement:** for **AT**: Q2, 3, 4, 5 There is no replacement for **AP** unless Pythagoras was used
		1(b)	ED = $\sqrt{20^2-15^2}$ = 13.2287…= 13 m	**AP**		
		1(c)	IH = $15 \times \tan 31^\circ$ = 9.0129…= 9 m	**AT**		
		1(d)	$\angle JKL = \cos^{-1}(15 \div 20) = 41.4096\ldots \approx 41.4^\circ$	**AT**		
Achievement with Merit	Solve problems in practical situations involving right-angled triangles.	2	$\frac{1}{2}$ RS = $25 \times \cos 50^\circ$ = 16.069… So RS = $2 \times 25 \times \cos 50^\circ$ = 32.1393… R and S are 32 metres apart	**AT** **M**	Units not needed. Any correct rounding/truncation accepted. A correct mathematical statement will be expected in each question, along with evidence of use of trig and / or Pythagoras. Penalise **IMS** the first time it occurs.	Achievement **plus** 3 of code **M** **Replacement:** for **M**: Q5
		3	TA = $40 \div \sin 26^\circ$ = 91.246… = 91 m	**AT / M**		
		4	CT + TK = $50 \times \sin 49^\circ$ = 37.735…m TK = $6 \times \tan 58^\circ$ = 9.602…m So cliff CT = 37.735 – 9.60 = 28.14… ≈ 28 m Accept similar solutions that take Manu's height into consideration.	**AT** **AT** **M**		
Achievement with Excellence	Solve problems in word or 3D situations.	5	Distance across the river is made up of a vertical component from the first part of crossing, and a vertical component from the second part of the crossing. We know $V_1 + V_2 = 37$ m $V_2 = 37 - 32 \times \cos 44^\circ = 37 - 23.0188$ = 13.9811 m Distance rowed = 13.9811… ÷ sin60° = 16.144 = 16 m	**AT** **M** **E**	Accept rounding and truncation to 2 dp. Logical setting out, with correct mathematical statements, is expected. Minor error ignored once, but the strategy should be clear, and all mathematical statements should be correct. Units not required.	Achievement with Merit **plus** Code **E**

Judgement Statement

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Achievement	**Achievement with Merit**	**Achievement with Excellence**
Solve right-angled triangle problems. 3 × A (including at least one of AP and one of AT).	Solve problems in practical situations involving right-angled triangles. Achievement *plus* 3 × M	Solve problems in word or 3D situations. Merit *plus* 1 × E