Mark scheme

Right-angled trigonometry

Mathematics 0580 · Questions from Paper 1, Paper 2, Paper 3 and Pape…

Total marks

38

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	3	3	3	3	3	4	4	11	**38**

Question 1 [2]

1	9.18 or 9.177…	**2**	**M1** for $\sin 35 = \frac{x}{16}$ or better

Question 2 [2]

2	54.3 or 54.31…	**2**	**M1** for $\cos [x] = \frac{7}{12}$ oe

Question 3 [3]

3	$[x =] \frac{17.5}{\tan 48}$ or $[x =] \tan 42 \times 17.5$	**M2**	**M1** for $\tan 48 = \frac{17.5}{x}$ or $\tan (90 - 48) = \frac{x}{17.5}$
	15.75.. or 15.76	**A1**	

Question 4 [3]

4	70.5 or 70.48 to 70.49	**3**	**M2** for $[BC =] \frac{32}{\sin 27}$ or $\frac{32}{\cos 63}$ oe or **M1** for $\sin 27 = \frac{32}{BC}$ or $\cos 63 = \frac{32}{BC}$ oe

STEM | Exam Builder

Question 5 **[3]**

5	234 or 234.3 to 234.4	**3**	**M2** for [dist =] $\frac{300}{\tan 52}$ oe or **M1** for correct implicit trig statement allow **M1** if they use *their* 52 or *their* 38 provided it is marked on the diagram or **B1** for 52 or 38 correctly placed If zero scored, **SC1** for final answer 384

Question 6 **[3]**

6	18.6 or 18.59…	**3**	**M2** for tan = $\frac{12.6-1.5}{33}$ oe or **M1** identifying the correct angle of elevation or for 18.6 or 18.59… seen and spoiled After 0 scored **SC1** for [angle *ETP* =] 71.4 or 71.4[0…] or 71.41

Question 7 **[3]**

7	9.4[0] or 9.403...	**3**	**M2** for $\sin 33.14 = \frac{\text{dist}}{17.2}$ oe or **M1** for recognition that the line from *C* is perpendicular to *AB*

Question 8 **[4]**

8	**(a)** 17.5(……)	**2**	**M1** for $\sin 38 = \frac{x}{28.5}$ or better
	(b) 20.38 to 20.44	**2ft**	**M1** for tan (*BCD* =) their **(a)** ÷ 47.1

STEM | Exam Builder

Question 9 **[4]**

9	$6\sqrt{3}$ oe	**4**	**B1** for $\tan 30 = \frac{1}{\sqrt{3}}$ or $\frac{\sqrt{3}}{3}$ or for $\sin 60 = \frac{\sqrt{3}}{2}$ **and** $\sin 30 = \frac{1}{2}$ **M2** for $\frac{6}{\tan 30}$ or $\frac{6\sin(60)}{\sin(30)}$ or **M1** for $\frac{6}{x} = \tan 30$ or $\frac{\sin 60}{x} = \frac{\sin 30}{6}$

Question 10 **[11]**

10(a)	$180 - \frac{360}{5}$ or $\frac{(5-2)\times 180}{5}$ or $\frac{(2\times 5-4)\times 90}{5}$ or $\frac{5\times 180-360}{5}$	**M2**	or **M1** for $\frac{360}{5}$ or $(5-2)\times 180$ or $90(2 \times 5 - 4)$ or $3 \times 180 \div 5$ or $6 \times 90 \div 5$ or $5 \times 180 - 360$ If 0 scored, **SC1** for $\frac{5-2\times 180}{5}$
10(b)(i)	7.05 or 7.053…	**3**	**M2** for $12 \times \cos 54$ oe or **M1** for implicit form or **B1** for length of edge of pentagon = 14.1 to 14.11 If 0 scored, **SC1** for right angle at *M*
10(b)(ii)(a)	22.8 or 22.81 to 22.83… nfww	**3**	**M2** for $\frac{\textit{their}\ \textbf{(b)(i)}}{\cos 72}$ oe or **M1** for implicit form oe or **B1** for $AX = 36.9$ or 36.93 to 36.94
10(b)(ii)(b)	179 or 179.1 to 179.3…	**3**	**M2** for $\frac{1}{2}\times 12\times \textit{their}\ AX \times \sin 54$ oe or $\frac{1}{2}\times 12\times \textit{their}\ OX \times \sin 108$ oe or $\frac{1}{2}\times \textit{their}\ AX \times \textit{their}\ OX \times \sin 18$ or $\frac{1}{2}\times 12^2 \times \sin 72 + \text{area}\ OBX$ oe or $\frac{1}{2}\times 12^2 \times \sin 72 + \text{area}\ OMB + \text{area}\ MBX$ oe or **M1** for a correct method to find area of one relevant triangle *AOB*, *OMB*, *MBX*, *OBX* or *ONX* **seen**

STEM Exam Builder