

Similarity

Mark Scheme 3

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Shape, Space and Measures
Sub Topic	Similarity
Booklet	Mark Scheme 3

Time Allowed: 28 minutes

Score: /21

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

1.	(a)	eg. $22 \times \frac{24}{20}$ or 22×1.2			M1 for complete method or correct scale factor (may be seen within an equation) eg. 20/24 or 24/20 or 1.2 or 0.83...oe
			26.4	2	A1
	(b)	eg. $28.2 - 28.2 \div "1.2"$ or $28.2 \div 6$ oe			M1ft for a complete method ft from "1.2" used in (a) which must come from a correct method
			4.7	2	A1
					Total 4 marks

2.		$\sqrt{\frac{120}{750}} \left(= \frac{2}{5} \right)$ oe or $\sqrt{\frac{750}{120}} \left(= \frac{5}{2} \right)$ oe or		3	M1 Correct linear scale factor (accept ratios)
		$0.4^3 (= 0.064)$ oe or $2.5^3 (= 15.625)$ oe			M1 or for $1600 \div 6.25^3$ oe or 1600×0.16^3 oe
			102.4		A1
					Total 3 marks

Q	Working	Answer	Mark	Notes
3. (a)	$\frac{9}{4}$ or $\frac{4}{9}$ oe	11.25	2	M1 For the correct SF seen or used A1oe
(b)	Eg $\frac{5}{x+4.5} = \frac{x}{9}$ or $\frac{4}{x+4.5} = \frac{x}{9}$ or $\frac{5}{4} = \frac{4.5}{x}$ or $4.5 \div \frac{5}{4} = \frac{11.25}{1}$ or $2.25x = x + 4.5$ oe	3.6	2	M1 A fully correct equation in x or a correct calculation for x A1oe
(c)	2.25^2 or 5.0625 or $\frac{16}{81}$ or $\frac{81}{16}$ or $81 : 16$ or $16 : 81$ or $\frac{16}{65}$ or $\frac{65}{16}$ or $65 : 16$ or $16 : 65$ $5.0625y - y = x$ or $\frac{65}{16} = \frac{x}{y}$ oe	$\frac{16x}{65}$	3	M1 M1 For a fully correct expression in x and y that can be rearranged to give y in terms of x A1oe eg $\frac{x}{4.0625}$ Accept $0.246(1538....)x$ rounded or truncated to at least 3SF
				Total 7 marks

4.	(a)	Eg $\frac{13.5}{6}$ or $\frac{9}{4}$ or 2.25 or $\frac{6}{13.5}$ or $\frac{4}{9}$ or 0.444(444...) or ($AB =$) $11.7 \div \frac{9}{4}$ or ($AB =$) $11.7 \times \frac{4}{9}$ or ($AB =$) $6 \times \frac{11.7}{13.5}$ oe $\frac{AB}{11.7} = \frac{4}{9}$ or $\frac{AB}{6} = \frac{11.7}{13.5}$ oe	5.2	2	M1 For correct scale factor or correct equation involving AB or correct expression for AB Accept 0.444(444...) rounded to at least 3SF A1
	(b)	Eg ($AD =$) $\frac{9}{4} \times 4$ or ($AD =$) $\frac{4}{\text{"5.2"}} \times 11.7$ or ($ED =$) $[\frac{9}{4} \times 4] - 4$ or ($ED =$) $\frac{4}{\text{"5.2"}} \times (11.7 - \text{"5.2"})$ or $\frac{AD}{4} = \frac{9}{4}$ or $\frac{AD}{11.7} = \frac{4}{\text{"5.2"}}$ or $ED + 4 = \frac{9}{4} \times 4$ or $\frac{ED}{11.7 - \text{"5.2"}} = \frac{4}{\text{"5.2"}}$ or $AD = 9$	5	2	M1 For a correct expression for ED or AD or For a correct equation involving ED or AD A1
					Total 4 marks

5.	a	8000:50 or 50:8000 or $\frac{8000}{50}$ oe	160	2	M1 A1
	b	$\frac{72}{80} \times 50$ oe	$72 \times 100 \div \text{'160'}$	45	M1 A correct method to find the length of the model, ft their answer to (a)
					A1 cao (If ans 1.6 in (a) then do not award marks for $72 \div 1.6 = 45$)
					Total 4 marks