Preparing to Teach – spring/summer 2010

GCSE Mathematics

Quality of Written Communication

- Exemplar Materials

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Exemplar Questions

Principal Examiners have prepared these Exemplar questions for specimen papers. These have not, therefore, been through the normal process of standardising that would take place for live papers.

Further copies of these Delegate Materials are available from:

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GCSE Mathematics 4360 - Unit 2F- Specimen Assessment Materials

✶**4** Shamina buys three apples that cost 40p each and four bananas that cost 25p each.
She pays with a £10 note.

How much change should Shamina get?

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Answer £ ..... *(3 marks)*

4	(£)1.20 or (£)1 seen	M1	oe
	10 – their 1.20 – their 1	M1	
	7.80	Q1	Strand (i) - Correct notation required Do not accept 7.8

Comments

In strands ii and iii the Q mark is always a separate mark. The answer of £7.80 is not worthy of two marks and so the Q mark replaces the A mark and is not awarded for incorrect money notation of £7.8 - on this scheme it is not a ft mark.

GCSE Mathematics 4360 - Unit 2H- Specimen Assessment Materials

✳**11 (a)** Simplify $(9 + \sqrt{7})(9 + \sqrt{7})$

Give your answer in the form $a + b\sqrt{7}$

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Answer ..... *(2 marks)*

✳**11 (b)** Prove that $\dfrac{\sqrt{12}+6}{\sqrt{3}} \equiv 2(1+\sqrt{3})$

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(4 marks)

11(a)	$81 + 9\sqrt{7} + 9\sqrt{7} + \sqrt{7}\ \sqrt{7}$ or better	M1	4 terms and any 3 correct
	$88 + 18\sqrt{7}$	A1	$a = 88$ $b = 18$
11(b)	$\dfrac{(\sqrt{12}+6)\sqrt{3}}{\sqrt{3}\sqrt{3}}$	M1	
	$\dfrac{\sqrt{36}+6\sqrt{3}}{3}$	A1	$\dfrac{6+6\sqrt{3}}{3}$
	$= 2 + 2\sqrt{3}$	A1	
	$= 2(1 + \sqrt{3})$	Q1	Strand (ii) -Correct answer with a logical argument showing key steps

11(b)	**Alternate method 1**		
	$\frac{\sqrt{12}}{\sqrt{3}} + \frac{6}{\sqrt{3}}$	M1	
	$\sqrt{4} + \frac{6\sqrt{3}}{\sqrt{3}\sqrt{3}}$	A1	
	$= 2 + 2\sqrt{3}$	A1	
	$= 2(1 + \sqrt{3})$	Q1	Strand (ii) - Correct answer with a logical argument showing key steps
11(b)	**Alternate method 2**		
	$\sqrt{12} + 6 = 2\sqrt{3}\ (1 + \sqrt{3})$	M1	
	$= 2\sqrt{3} + 2 \times 3$	A1	
	$= \sqrt{4}\ \sqrt{3} + 6$	A1	
	$\sqrt{12} + 6$	Q0	Note: This is not a full proof

Comments

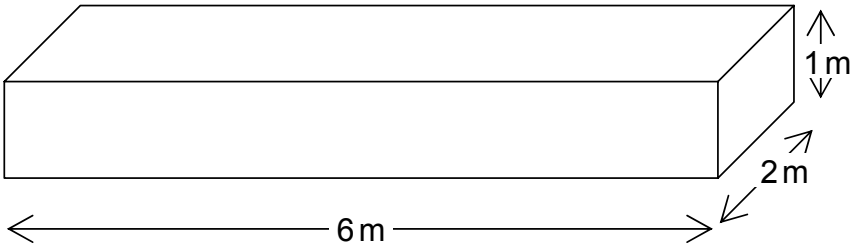
The Q mark, strand (ii), is awarded for a logical, complete argument with the correct use of surd notation throughout.

[Alternatively, in each of the first two schemes above, if $2 + 2\sqrt{3}$ is arrived at working from the LHS and then the candidate uses the RHS writing $2(1 + \sqrt{3}) = 2 + 2\sqrt{3}$, then Q1 is awarded.]

GCSE Mathematics 4360 - Unit 3H - Specimen Assessment Materials

✳**10** The shape of a flower bed is a cuboid as shown.

Not drawn accurately



$1\,m^3$ of soil weighs 1.25 tonnes

A gardener wants to fill the flower bed with soil as cheaply as possible.

The table shows the costs for Company A and Company B.

Company A	£49.50 per tonne	Delivery £30
Company B	10 tonnes for £430 then £67.50 per extra tonne	Delivery free

Which company should she use and how much will it cost?

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Answer Company .....

£ ..... *(6 marks)*

Comments

10	6 × 2 (× 1) or 12	B1	
	12 × 1.25 (= 15)	M1	
	their15 × 49.50 (+ 30) or 5 × 67.50 (+ 430) (= 337.50)	M1	
	(£)742.50 or (£)772.50	A1	
	Company B and (£)767.50	A1	
	Weight of soil calculated, costs worked and compared with the two companies (allow errors) with valid conclusion.	Q1	Strand (iii) An organised response leading to a correct conclusion

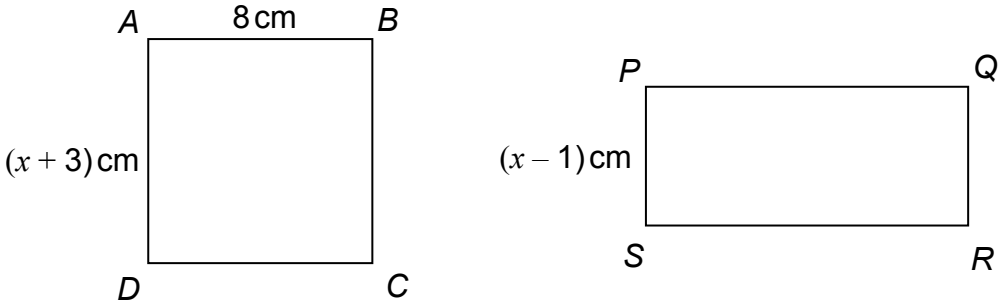
The Q mark, strand (iii), is awarded for an organised response, with working shown and a conclusion based on their values stated. Errors are allowed but the two M marks must be awarded to gain the Q mark.

GCSE Mathematics (linear) - Paper 2F & 2H- Specimen Assessment Materials

✳ **14** *ABCD* is a square.

PQRS is an oblong.

Not drawn accurately



The oblong and the square have the same perimeter.

Work out the length of *PQ*.

Show clearly how you work out your answer.

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Answer ..... cm *(4 marks)*

14	$x + 3 = 8$ or $x = 5$	M1	oe $x + 3 + 8 = x - 1 + PQ$ for M2
	(32 – their 4 – their 4) ÷ 2	M1	
	12	A1	
	Must use square to find x and then use their x in oblong to find PQ	Q1	QWC Strand (iii) – To achieve a correct solution , a clear and organised approach must be evident

Comments

Strand (iii) - organise the information clearly as indicated in the MS