

## Area of Compound Shapes Past Paper Questions (MS)



Q1.

Question	Working	Answer	Mark	Notes
		187	M1	for a method to find a missing length, e.g. $15 - 7 (= 8)$ or $22 - 9 (= 13)$ (may be seen on the diagram)
			M1	for a method to find the area of the triangle, e.g. $((15 - 7) \times (22 - 9)) \div 2 (= 52)$ or to find the area of the rectangle, e.g. $9 \times 15 (= 135)$
			A1	cao

Q2.

Paper 1MA1: 3F			
Question	Working	Answer	Notes
		48	P1 For start to process eg. $96 \div 12$ or $96 \div 2$
			A1 cao

Q3.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		32	M1 for method to find area of any one rectangle
			A1 cao



Q4.

Question	Working	Answer	Mark	Notes
*	$6 \times 2 + 3 \times 2 = 12 + 6 = 18$ or $2 \times 5 + 4 \times 2 = 18$  or $6 \times 5 - 4 \times 3 = 18$  $18 \div 2.5 = 7.2$ or $2.5 \times 7 = 17.5$  or $2.5 \times 8 = 20$	8 packs	4	M2 for a complete correct method for finding total area. (can be implied by 18) (M1 for attempt to calculating at least one area, $6 \times 2 (=12)$ or $3 \times 2$ or $2 \times 5 (=10)$ or $4 \times 2 (=8)$ or $2 \times 2$ or $6 \times 5 (=30)$ or $3 \times 4 (=12)$ )  M1 for their area $\div 2.5$ or repeated addition of 2.5 of their area or equivalent repeated subtraction.  C1 for clear communication that 8 full packs are required supported by their calculations provided at least 1 of the first 2 method marks awarded.  SCB3 for 8 identified as answer.

Q5.

	Working	Answer	Mark	Notes
		6.87	4	M1 for $\pi \times 4 \times 4$ or $\pi \times 4^2$ or $\pi \times 16$ or $\pi r^2 = 50.26\dots$ M1 for ' $\pi r^2 \div 2$ ' M1 for $8 \times 4 - '\pi r^2 \div 2'$ A1 for 6.86 – 6.88

Q6.

Question	Working	Answer	Mark	Notes
	$\sqrt{5^2 - 4^2} = 3$ $4 \times 8 = 32$ $32 + \frac{1}{2}(3 \times 8)$	44	5	P2 for $\sqrt{5^2 - 4^2}$ or for a height of 3 (P1 for $5^2 - 4^2$ ) P1 for process to find one area P1 for a complete process to find the total area A1 cao



Q7.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		48	P1 begins to work with rectangle dimensions eg $l+w=7$ or $2 \times l+w (=11)$ C1 shows a result for a dimension eg using $l=4$ or $w=3$ P1 begins process of finding total area eg $4 \times "3" \times "4"$ A1 cao

Q8.

Paper 1MA1: 3F			
Question	Working	Answer	Notes
		252	P1 For start to process eg. radius = $12 \div 4 (= 3)$ M1 Method to find area of trapezium or semicircle or circle P1 Process to find area of the shaded region A1 251.7 – 252

Q9.

PAPER: 1MA0 1F				
Question	Working	Answer	Mark	Notes
*		3	4	M1 for attempt to calculate at least one area eg $10 \times 7 (=70)$ or $16 \times 10 (=160)$ M1 for a method to find the total area (=124) M1 (dep on M1) for " $124" \div 36$ C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations Or M1 for an area of $36\text{m}^2$ drawn with dimensions shown M1 for 3 areas of $36\text{m}^2$ drawn with dimensions shown M1 for method to find the area left (=16) C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations



Q10.

PAPER: 1MA0 1H				
Question	Working	Answer	Mark	Notes
*		Has enough (with evidence)	5	<p>M1 for splitting the shape (or showing recognition of the “absent” triangles) and using a method to find the area of one shape</p> <p>M1 for a complete method to find the total area, (<math>= 9 \text{ m}^2</math>)</p> <p>M1 (dep on M1) for a method to find the number of packs required from their total area, eg. <math>9 \div 2 = 4.5</math> rounded up to 5</p> <p>M1 for a method to find 75% of 24.80 or 75% of the cost of their total number of packs, eg. <math>24.80 \times 5</math> or <math>24.80 \times \frac{75}{100} (= 93)</math> or <math>24.80 \times \frac{75}{100} (= 18.6)</math></p> <p>C1 for a conclusion supported by fully correct answers, eg. showing 9 (<math>\text{m}^2</math>), 5 (packs) and 93 or 7 (from <math>100 - 93</math>)</p> <p>OR</p> <p>M1 for method to find 75% of £24.80, eg. <math>24.80 \times \frac{75}{100} (= 18.6)</math></p> <p>M1 for method to find total number of packs Mary can buy, eg. <math>100 \div 18.60 = 5.3\dots</math> truncated to 5 or 10 (<math>\text{m}^2</math>)</p> <p>M1 for finding area of one relevant shape or showing how one pack (<math>2 \text{ m}^2</math>) can fit in the diagram</p> <p>M1 (dep on previous M1) for complete method to show that 5 packs can cover the floor</p> <p>C1 for a conclusion supported by fully correct answers, showing the capacity (10) greater than total area (9)</p>



Q11.

Question	Working	Answer	Mark	Notes
*		Conclusion (supported)	5	<p>M1 for finding the area of one rectangle which is not <math>6 \times 10</math> eg <math>2 \times 2.5 (=5)</math> or <math>4 \times 10 (=40)</math> or <math>2.5 \times 6</math> or <math>5 \times 2</math></p> <p>M1 for a complete method to find the total area eg <math>5+5+40</math> or <math>60-10 (=50)</math></p> <p>M1 for a complete method to find the number of tins needed eg "<math>50 \div 5 + 2.5 (=4)</math>" OR for a complete method to find the number of litres needed. eg "<math>50 \div 5 (=10)</math>" OR for a complete method to find the area covered by 3 tins eg <math>3 \times 2.5 \times 5 (=37.5)</math></p> <p>A1 for <math>50 \text{ (m}^2\text{)}</math> and 4 (tins needed) or for 10 (litres) and 7.5 (litres) or for <math>50 \text{ (m}^2\text{)}</math> and <math>37.5 \text{ (m}^2\text{)}</math></p> <p>C1 (dep M2) for a conclusion supported by their calculations</p>

Q12.

	Working	Answer	Mark	Notes
	$4.5 \times 2 + 3 \times 2 =$ 15 or $4 \times 3 + 2 \times 1.5 =$ 15 or $4 \times 4.5 - 2 \times 1.5 =$ 15	7	4	<p>M1 for a correct method to calculate at least one area using correct dimensions M1 for a complete method to find the total area (can be implied by 15) M1 for "<math>15 \div 2.25 (=6.66\dots)</math>" or <math>2.25 \times 6 (=13.5)</math> or <math>2.25 \times 7 (=15.75)</math> or repeated addition to within 2.25 of "15" C1 (dep on at least 1 method mark) for 7 packs clearly identified and supported by their calculations</p>



Q13.

Question	Answer	Mark	Mark scheme	Additional guidance
	186.15	P1	for correctly finding the area of at least three sections, eg 3 of $11 \times 7 (= 77)$ , or $9 \times 7 (= 63)$ , or $\frac{1}{2} \times 11 \times 9 (= 49.5)$ , or $\frac{1}{4} \times \pi \times 7^2 (= 38.4845\dots)$	Note a trapezium for the rectangle and triangle should be classed as two areas. Accept figures rounded or truncated to 1 dp or better throughout.
		P1	for a method to find the number of bags required for one area or a combination of areas eg $"77" \div 14 (= 5.5)$ or $"227.9845\dots" \div 14 (= 16.2846\dots)$	
		P1	for method to work out the total area for all four sections eg $"77" + "63" + "49.5" + "38.4845\dots" (= 227.9845\dots)$ or adding the exact number of bags per section for all four sections eg $"5.5" + "4.5" + "3.53\dots" + "2.74\dots" (= 16.28\dots)$	This mark is dependent upon correct processes seen for all four sections.
		P1	for method to find the cost, eg integer number of bags $\times 10.95$	integer number of bags must come from $\text{area} \div 14$ rounded up
		A1	cao	