Mark scheme

End of Unit assessments are 30 marks, so you should allow 35 minutes.

The following marks are awarded for each question.

B	Unconditional accuracy mark
M	Method mark – the correct method must be shown but there may be an arithmetic error; the sight of the value given in brackets implies the award of the method mark
A	Accuracy mark – unless the question specifies that working **must** be shown then the sight of the correct answer implies the award of full marks (unless the answer clearly comes from incorrect working)
C	Communication mark
P	Process mark to show correct process for problem solving. Any other process of a similar standard to achieve an accurate result is acceptable to achieve this mark
cao	Correct answer only
ft	Incorrect values may be **followed through** from one step to the next **provided** that the correct method is seen in each step and the only errors are arithmetic. This is shown in mark schemes by putting a number in inverted commas
oe	**Or equivalent** answer mark

Non-calculator			
Q	**Answer**	**Mark**	**Comment**
1a	$11^2 \times 7$	M1	
1b	847	A1	oe accept answer in metres (8.47) if the correct unit is given i.e. m^2
2	2.61	M1	For method e.g. adding 1.34 and 0.25 then subtracting this from 4.2
		A1	cao
3	−7	B1	cao
4	26	M1	27 + 25 (= 52)
		A1	cao
5a	6	B1	cao
5b	3	M1	$\dfrac{5 + 10}{5}$
		A1	cao
6	No, because e.g. 9 × 9 = 81 and 90 × 90 = 8100 or There is no number that multiplies by itself to make 810	C1	
7a	34 × 38 or 1292 − 38	B1	

7b	1292	B1	
8	455.62<u>5</u> means that some charities will receive £455.62 while others will receive £455.63	M1	5467.5 ÷ 12 = 455.625
	If all charities received £455.62, there would be 6p left over and, e.g. there is not enough money to pay all charities £455.63, you would need £5467.56	C1	Correct comment
9	a and b must be 2 whole numbers that multiply to make 225, e.g.	B1	for sight of an attempt to find a product to make 225
	$a = 5$ and $b = 45$ or $a = 25$ and $b = 9$ or $a = 75$ and $b = 3$ etc.	B1	for a correct solution

▦ Calculator

Q	Answer	Mark	Comment
10	563.40	M1	19 975 – 5890 (= 14 085)
		M1	ft "14 085" ÷ 25 =
		A1	cao
11	Because e.g. −10 × −10 × −10 = −1000 or because there are 3 minuses so the answer has to be a minus number	C1	
12	1.2	M1	11.52 ÷ 8 (= 1.44) oe
		M1	ft $\sqrt{"1.44"}$
		A1	
13	5.5	B1	For 14.5 seen
		B1	cao
14	$2^6 \times 5^2$	M1	$2 \times 2^5 \times 5^2$ oe (may not be in index form)
		A1	must be in index form
15	75.43	M1	$\frac{22}{7} \times 3(3 + 5)$ or for 75.428571
		A1	cao

Non-calculator

Question	Topic	Step	Marks
1a	Use index notation for small integer powers.	6th	1
1b	Use index notation for small integer powers.	6th	1
2	Choose and use an appropriate mental or written method, including column addition and subtraction, to add and subtract decimal numbers with 1, 2 or 3 decimal places, including in the context of measures and money.	5th	2

3	Multiply and divide negative integers by a negative number.	5th	1
4	Extend mental calculations to cubes and cube roots.	5th	2
5a	Combine laws of arithmetic for brackets with mental calculations of square roots.	6th	1
5b	Combine laws of arithmetic for brackets with mental calculations of square roots.	7th	2
6	Extend mental calculations to squares and square roots.	7th	1
7a	Use mental strategies for multiplication – doubling and halving strategies.	6th	1
7b	Use mental strategies for multiplication – doubling and halving strategies.	6th	1
8	Solve multi-step problems in contexts, including money and decide which operations and methods to use.	7th	2
9	Use mental strategies to solve word problems set in context using square roots and cube roots mentally.	7th	2

⊞	**Calculator**		
Question	**Topic**	**Step**	**Marks**
10	Solve multi-step problems in contexts, including money and decide which operations and methods to use.	6th	3
11	Extend mental calculations to cubes and cube roots.	7th	1
12	Use mental strategies to solve word problems set in context using square roots and cube roots mentally.	7th	3
13	Use an extended range of calculator functions, including +, −, ×, x^2, $\sqrt{x}$, memory, x^y, $x^{\frac{1}{y}}$, brackets.	7th	2
14	Given a number written as a product of its prime factors, use this to write a multiple of the number as a product of its prime factors.	8th	2
15	Use an extended range of calculator functions, including +, −, ×, x^2, $\sqrt{x}$, memory, x^y, $x^{\frac{1}{y}}$, brackets.	9th	2

Marks to Steps conversion table

The table below converts marks to a step on the Pearson progression scale. For more information on Progress & Assess please see the progression website.

Mark boundary	Step
0	U
1	3rd
2–5	4th
6–10	5th
11–16	6th
17–21	7th
22–25	8th
26–30	9th