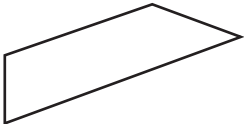
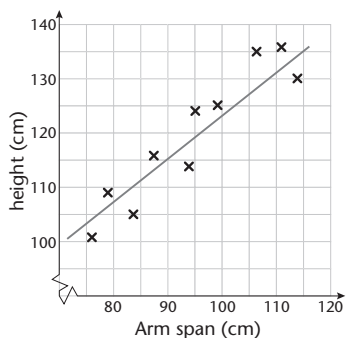


Pages 96–102 Practice Paper 1 (non-calculator)

Question	Mark	Correct response	Comments								
1 a	1	For example, 	Acute angles are less than 90° and obtuse angles are between 90° and 180° .								
b	1	An acute angle is less than 90° and four times a number less than 90° must be less than 360.	This is a Using and Applying maths question. In your answer, you must show that you know the sum of the angles in a quadrilateral is 360° .								
2 a	1	$\frac{12}{25}$	Your answers to this question must be written as a fraction. Answers such as 12 out of 25 or 12 in 25 or $12 : 25$ are not acceptable.								
b	1	$\frac{8}{25}$									
c	1	$\frac{20}{25}$ or $\frac{4}{5}$	20 chocolates are not white. You would not lose the mark if you did not cancel down the fraction.								
3	2 or 1	(£)3.75 digits 3375 seen	Use a suitable method to work out 1.35×25 , which is 33.75. The saving is $33.5 - 30 = 3.75$								
4 a	1 1	18 19	Work out $6 + (2 \times 5) + 2 = 6 + 10 + 2 = 18$ Work out $(3 \times 6) + 5 - (2 \times 2) = 18 + 5 - 4 = 19$								
b	1	7	$a + b + c = 13$, so $d = 20 - 13 = 7$								
5 a	2	80, 60%	Remember that a percentage means out of 100.								
b	1	Any that work: 5 out of 100, 1 out of 20, etc.									
6	1 1 1	$\frac{11}{12}$ $\frac{7}{12}$ $\frac{4}{12}$ or $\frac{1}{3}$	$\frac{1}{2} = \frac{6}{12}$ $\frac{1}{4} = \frac{3}{12}$ and $\frac{1}{3} = \frac{4}{12}$ $\frac{3}{4} = \frac{9}{12}$								
7 a	1	<table border="1" data-bbox="427 1563 644 1637"> <tr><td>x</td><td>2</td><td>4</td><td>6</td></tr> <tr><td>y</td><td>7</td><td>9</td><td>11</td></tr> </table>	x	2	4	6	y	7	9	11	The mapping $y = x + 5$ means add 5 to each x -value to get the y -value.
x	2	4	6								
y	7	9	11								
b	1	<table border="1" data-bbox="427 1659 644 1733"> <tr><td>x</td><td>2</td><td>4</td><td>6</td></tr> <tr><td>y</td><td>1</td><td>5</td><td>9</td></tr> </table>	x	2	4	6	y	1	5	9	The mapping $y = 2x - 3$ means multiply each x -value by 2 and then subtract 3 to get the y -value.
x	2	4	6								
y	1	5	9								
c	1	$(y) = \frac{1}{2}x + 1$ or $(y) = x \div 2 + 1$	To get the y -value, you halve each x -value and then add 1.								
8 a	2 or 1	Cuboid B	The surface area of a cuboid is the total area of its 6 faces. $A = 62 \text{ cm}^2$, $B = 88 \text{ cm}^2$, $C = 82 \text{ cm}^2$. You would get 1 mark for finding the correct surface area for two cuboids.								

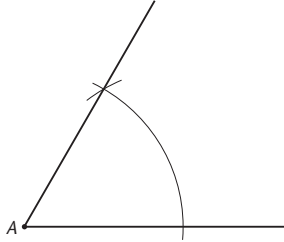
Question	Mark	Correct response	Comments
b	2 or 1	Cuboid C	The volume of a cuboid is $V = lwh$. $A = 30 \text{ cm}^3$, $B = 40 \text{ cm}^3$, $C = 42 \text{ cm}^3$. You would get 1 mark for finding the correct volume for two cuboids.
c	1	1 (cm)	$V = 10 \times 3 \times h$, so $30 = 30h$ and $h = 1$
9 a	1	No. The sides are the same length, but the 4 angles are not 90° , or it is a rhombus.	
b	1	Yes. Two pairs of adjacent sides have the same length.	
c	1	No. It only has one pair of parallel sides, or it is a trapezium.	
10	1 1 1	-2 -4 -5	$12 + (-2) = 10$, since $+(-)$ is the same as $-$ $6 - (-4) = 10$, since $-(-)$ is the same as $+$ $-2 \times (-5) = 10$, since $- \times - = +$
11	2 or 1	$\frac{1}{4}$ $\frac{6}{24}$ or $\frac{3}{12}$	To multiply fractions, multiply the numerators and the denominators. You would get 1 mark for not cancelling.
12 a	1	$(-3, -2)$	Draw the line AB to find the mid-point.
b	1	$(-1, 0)$	
13	1 1 1	$(x) = 4$ $(y) = 5$ $(z) = 3$	$2x = 8$ (take 3 from both sides) $x = 4$ (divide both sides by 2) $3y - 6 = 9$ (multiply out brackets) $3y = 15$ (add 6 to both sides) $y = 5$ (divide both sides by 3) $2z - 4 = 2$ (take z from both sides) $2z = 6$ (add 4 to both sides) $z = 3$ (divide both sides by 2)
14	1 1	$x = 7 - y$ $w = z \div 3$ or $\frac{z}{3}$	Take y from both sides to make x the subject. Divide both sides by 3 to make w the subject.
15	2 or 1	$x^2 - x - 12$ most of $x^2 + 3x - 4x - 12$ seen	You would get 1 mark for 3 terms from $x^2 + 3x - 4x - 12$
16 a	1	Positive correlation or greater height, greater arm span	

Question	Mark	Correct response	Comments
b	1	Suitable line, for example, 	Your line should have about the same number of points above it as below. It may or may not pass through some of the points.
c	1	8 cm	Use your line of best fit.
d	1	No, outside range of graph and babies may not follow same growth pattern as older students.	
17	1	95 (kg), 12	Interpret the final entry in the diagram for the heaviest person. Count the number of entries in the last 3 rows for those over 70 kg.
	1	83 (kg), 6	Those over 70 kg are in the last 2 rows.
	1	76 (kg), 30 (kg)	The modal weight is the weight common to most members. The range is the difference between the heaviest weight and the lightest weight.
18 a	2 or 1	891 660 and/or 81 seen	Either work out $33 \times 20 + 33 \times 7 = 660 + 231$ or $27 \times 30 + 27 \times 3 = 810 + 81$
b	1 1	3. The smallest 2 digit number is 10 and $10 \times 10 = 100$ 4. The largest 2 digit number is 99 and $99 \times 99 = 9801$	
19 a	1	0.36	Work out $36 \div 100$
b	1	0.58	Work out $290 \div 500$
c	1	Zara, because she had more trials	
20	1 1	2.4×10^6 6×10^5	When multiplying, you add the powers. When dividing, you subtract the powers.
21	1 1 1	$a = 64, b = 1$ $a = 4, b = 3$ $a = 2, b = 6$	Start by thinking of all the factors of 64. These give possible values for a .

Pages 103–109 Practice Paper 2 (calculator)

Question	Mark	Correct response	Comments	
1 a	2	30 (people)	84° is equivalent to 7 people, so $84 \div 7 = 12^\circ$ is equivalent to 1 person. $360 \div 12 = 30$	
	or 1	12 seen		
b	2	162 (degrees)	20 people in a pie chart will get $360 \div 20 = 18^\circ$ per person. 9 people will be an angle of $9 \times 18 = 162^\circ$	
	or 1	18 seen		
2 a	1	12 or 16	The factors of 48 are: {1, 2, 3, 4, 6, 8, 12, 16, 24, 48}. You can give both answers.	
	1	15	The factors of 150 are: {1, 2, 3, 5, 6, 10, 15, 25, 30, 50, 75, 150}. 'Between' means that you do not include 10 or 20.	
	1	17	The factors of 51 are: {1, 3, 17, 51}.	
b	1	'No' ticked and an explanation such as '150 is not in the 60 times table.'	You need to make it clear that you understand that a multiple is in the times tables so writing down 60, 120, 180, ... would just about do this.	
3 a	1	12	The range is the difference between the highest and the lowest numbers. From -3 to 9 is a difference of 12.	
	b	1	20	The total of the negative numbers is -5. The total of the positive numbers is 25. $25 - 5 = 20$
	c	1	-1	The mode is the most common number.
d	1	1	The median is the middle number when the numbers are in order. These are already in order but there is an even number of values, so the median is between 0 and 2.	
e	2	2.5	The mean is the total of the numbers divided by how many numbers there are. The total is 20 and there are 8 values.	
	or 1	Showing a correct method, e.g. the total $\div 8$		
4 a	1	23 or 37 or 43 or 47	Prime numbers have no factors other than 1 and themselves. Only one answer is needed but you will not lose the mark if you give more than one.	
	b	1	25 or 36	Square numbers are numbers that can be written as 5×5 or 6×6 , etc.
	c	1	Because a square number always has a factor other than 1 or itself.	You need to make it clear you know that square numbers can be written as a product such as 2×2 , 5×5 , etc.
5 a	1	75 (degrees)	As the triangle is isosceles, the two base angles are the same. $180 - 30 = 150$, $150 \div 2 = 75$	
	b	1	135 (degrees)	There are 360° in the full turn. The total of the angles shown is $45 + 90 + 90 = 225$. $360 - 225 = 135$

Question	Mark	Correct response	Comments
6 a	1	110 (degrees)	Be careful to choose the correct scale on your protractor.
b	2 or 1	350 (metres) 7 cm seen	Multiply the length of BC by 50.
7	3 or 2 or 1	(£)62.50 125 seen 1000 grams seen	This is a Using and Applying maths question. You have to convert 1 kg to grams (1000 grams), then divide 1000 by 8 (= 125). You then have to change 125 fifty pence coins into pounds.
8 a	2 or 1	Any three points on the line Any two points	The possible values are: (-2, -1), (-1, 0), (0, 1), (1, 2), (2, 3), (3, 4), (4, 5), (5, 6). You can read the coordinates from the graph.
b	1	$y = x + 1$	You should see that the second (y) coordinate is equal to 1 more than the first (x) coordinate.
c	1	A line parallel to $y = x + 1$ passing through (0, 3)	The line is parallel to the given line but passes through 3 on the y -axis rather than 1.
9 a	1	219.8 to 220 (cm)	The formula for the circumference is $C = \pi d$ or $C = 2\pi r$.
b	2 or 1	2200–2300 digits 22 or 23 seen	5 kilometres is 5000 metres which is 500 000 cm. $500\,000 \div (\pi \times 70) = 2273.64$. The answer only has to be approximate, so you can round off.
10	1 1	1694 3.5	Remember to include the bracket keys. Work out the numerator and denominator separately first.
11 a	1	29.4 (cm)	Work out 21×1.4
b	1	164 (mm)	Work out $229 \div 1.4$
c	1	Yes, folded paper is 210 mm x 147 mm	Work out $294 \div 2$ and compare widths and heights.
12	2	Man City by 57 seats (Man Utd 2295, Man City 2352)	Work out $3.4 \div 100 \times 67\,500$ and $4.9 \div 100 \times 48\,000$
13	1	Yes, $3 \times (2 \times 18.5 + 13) = 150$, $76 + 4 \times 18.5 = 150$	Substitute $x = 18.5$ in each side of the equation.
14	1 1 1 1	$16 - 10a$ $b^2 + 4b$ $24c^2$ $4d^2$	Collect like terms.
15	2 or 1	1.9 total of 38 seen	For each row, multiply the number of children per family by the frequency. Add these values to give 38 and divide by 20.

Question	Mark	Correct response	Comments
16 a	1	135°	Sum of angles in an octagon = $6 \times 180 = 1080^\circ$, so each angle is $1080 \div 8 = 135$
b	1	45°	$b = 360 - 135 - 90 - 90 = 45$
17	2	1 mark for arcs. 1 mark for angle $60^\circ \pm 1^\circ$	Think how to construct an equilateral triangle using a ruler and compasses only.
			
18 a	2 or 1	8.22 (cm) $\sqrt{67.6}$ seen	Use Pythagoras' theorem. $x^2 = 5.4^2 + 6.2^2$
b	2 or 1	4.34 (cm) $9.3 \times \tan 25$ seen	Use trigonometry. $\tan 25 = \frac{\text{opp}}{\text{adj}} = \frac{x}{9.3}$
19	2 or 1	Increases by 8% 108 or 0.9×1.2 seen	Length = 90% of original Width = 120% of original Area = 0.9×1.2 of original
20	2 or 1	$3n + 1$ $3n$ seen	Each term is one more than 3 times the term number.
21	2 or 1	20 cm $AF = 12$ cm	Using similar triangles $\frac{ED}{EC} = \frac{EF}{EA}$ so $\frac{4}{10} = \frac{8}{20}$

Pages 110–111 Mental Mathematics Test

Each question is worth 1 mark each, giving you a total out of 30.

Question	Mark	Question	Mark
1	43	20	7
2	3	21	12 or 16
3	14	22	199
4	-10	23	
5	31		
6	0.9		
7	95 (94.9 recurring)		
8	Friday		
9	Circle		
10	$(3\frac{1}{2}, 2)$		
11	10		
12	4.5		
13	$\frac{17}{20}$	24	9π
14	33.3% (33%)	25	12
15	36	26	375–425
16	21	27	$x - 4$
17	475	28	$\frac{1}{3}$
18	$0.5 \times 0.3 \times 0.2$	29	Tetrahedron
19	10	30	120

