

Maths Mock Test Paper 13 Answers

Q#	Answer	Explanation
1	E	The first column after the decimal point is the tenths column, so the 7 in 0.7 stands for 7 tenths, which is $\frac{7}{10}$. The fraction $\frac{7}{100}$ would be written 0.07, ten times smaller than 0.7.
2	D	Four of the 9 degrees take the temperature up to 0°C , and the remaining 5 give 5°C .
3	A	Adding 100 increases the hundreds digit by one. 5,372 becomes 5,472.
4	E	The x-coordinate is always written first, so from (3, 8) it is 3. The y-coordinate is written second, so from (6, 2) it is 2. The point is therefore (3, 2).
5	C	Half of 30 is $30 \div 2 = 15$ children.
6	A	The number inside the scooter circle but outside the overlap is 4, so 4 pupils own a scooter but not a bike.
7	D	To round 4,723 to the nearest 1,000, look at the hundreds digit. The hundreds digit is 7, which is 5 or more, so we round up to 5,000.
8	E	Factors come in pairs that multiply to make 18: 1 and 18, 2 and 9, then 3 and 6. Writing all six in order gives 1, 2, 3, 6, 9, 18. Every list must start with 1 and end with the number itself.
9	A	The angles inside a quadrilateral add up to 360° . Here $65^{\circ} + 115^{\circ} + 115^{\circ} = 295^{\circ}$, so $x = 360^{\circ} - 295^{\circ} = 65^{\circ}$.
10	B	If 12 of the 30 pupils are boys then $30 - 12 = 18$ are girls. The ratio of boys to girls is 12 : 18, and dividing both sides by 6 simplifies it to 2 : 3.
11	C	The week beginning Monday the 15th runs along that row to Sunday. Reading across, the Sunday of that week is the 21st.

12	B	Starting at 5, the total has to come down to -3. From 5 down to 0 is 5 steps and from 0 down to -3 is 3 steps more, which is $5 + 3 = 8$ steps in all. The second number is therefore -8, and checking, $5 - 8$ gives -3.
13	A	The first three significant figures are 1, 2, and 3. The next digit is 4, which is less than 5, so we round down. $123,456 \rightarrow 123,000$.
14	E	Each thousand is made of 10 hundreds, so 4,000 holds 40 hundreds and the 500 holds 5 more. Altogether that is $40 + 5 = 45$ hundreds, which matches $4,500 \div 100 = 45$.
15	B	The theatre row has $28 + 22 = 50$ tickets and 22 of them are children's tickets. That is 22 out of 50, and dividing both numbers by 2 gives 11/25.
16	E	The mixture is made of $3 + 2 = 5$ equal parts, so one part is $20 \div 5 = 4$ litres. Blue makes up 2 parts, which is $2 \times 4 = 8$ litres.
17	B	Each ticket is a quarter of a pound, so 4 tickets cost £1. There are $24 \div 4 = 6$ groups of four tickets, so the total is £6.00. Checking in pence, $24 \times 25 = 600\text{p}$.
18	C	The sequence goes up in 3s, so start with $3n$, which gives 3, 6, 9, 12. Each term is 2 more than this, so the rule is $3n + 2$.
19	E	A point sits above the line $y = x$ when its y-coordinate is bigger than its x-coordinate. Only (2, 5) does that, since 5 is more than 2.
20	B	Three thousands give 3,000 and four tens give 40, with nothing in the hundreds or units columns, so the whole-number part is 3,040. Hundredths are two places after the decimal point, so the 7 goes there, giving 3,040.07.
21	E	Train A leaves Newport at 06:55 and reaches Shrewsbury at 08:35. From 06:55 to 08:35 is 1 hour 40 minutes.
22	C	At 1 hour the graph has climbed to the 30 line, so the car had covered 30 km.
23	C	The wins give $5 \times 6 = 30$ and the losses give $6 \times (-4) = -24$, so the total is $30 - 24 = 6$.

24	E	Rounding to the nearest 50 gives 300 for any number from 275 up to 324. The numbers 276, 299, 310 and 324 all fall inside that range, but 329 is nearer to 350, so it would be reported as 350 instead.
25	D	Multiply the three measurements: $11 \times 3 \times 4 = 132 \text{ cm}^3$.
26	E	Ten per cent of £45 is £4.50, so 20% is $2 \times 4.5 = 9$ pounds. Taking 20% off saves £9, which is $9 - 8 = 1$ pound more than taking £8 off.
27	C	$11 \times 12 = 132$. Work it out as $10 \times 12 = 120$, plus one more 12.
28	D	A number divides exactly by 9 when the sum of its digits is a multiple of 9. Here $4 + 1 + 5 + 8 = 18$, and 18 is a multiple of 9, so 4,158 divides by 9. Checking, $4,158 \div 9 = 462$.
29	B	Divide by 1,000: $4,050 \div 1,000 = 4.05 \text{ kg}$, which is 4 kg and 50 g.
30	B	A full turn of 360° stands for all 90 books, so each degree is worth $90 \div 360 = 0.25$ books. The adventure sector of 80° is therefore $80 \times 0.25 = 20$ books.
31	C	From 15:38, adding 1 hour gives 16:38, and adding 47 more minutes gives 17:25.
32	D	The speed is $96 \div 1.5 = 64 \text{ km per hour}$, so in 4 hours the bus travels $4 \times 64 = 256 \text{ km}$.
33	B	Thirty tickets cost $30 \times 7.5 = 225$ pounds altogether. The class has £180 already, so the amount still needed is $225 - 180 = 45$ pounds.
34	E	The length is $x + 3 \text{ cm}$. The perimeter is two widths and two lengths, which is $x + x + (x + 3) + (x + 3)$. Collecting the terms gives 4 lots of x plus 6, so the perimeter is $4x + 6 \text{ cm}$.
35	D	At 10:30 the minute hand points at 6. The hour hand is half way between 10 and 11, so it is $4\frac{1}{2}$ hour marks from the 6. Each mark is 30° , so the angle is $4\frac{1}{2} \times 30^\circ = 135^\circ$.
36	B	Per 100 g the costs are $115 \div 2.5 = 46\text{p}$, $176 \div 4 = 44\text{p}$ and $460 \div 10 = 46\text{p}$. The 400 g pack is cheapest per 100 g, so it is the best value.

37	D	A line crosses the x-axis where $y = 0$, so $x + 4$ must be 0, which needs $x = -4$. The crossing point is $(-4, 0)$.
38	B	From one Monday noon to the next is 7 days, so the clock loses $7 \times 3 = 21$ minutes in that time. Twenty-one minutes before noon is 11:39.
39	C	The tins weigh $24 \times 400 = 9,600$ g. Adding the box gives $9,600 + 500 = 10,100$ g, which is 10.1 kg.
40	D	A number that is a multiple of both 4 and 6 must be a multiple of 12, their lowest common multiple. The multiples of 12 close to 100 are 84 and 96, and since $12 \times 8 = 96$, the largest two-digit one is 96.
41	A	Each slab is half a metre across, so along the length there is room for $12 \div 0.5 = 24$ slabs and across the width for $1 \div 0.5 = 2$ slabs. The path therefore takes $24 \times 2 = 48$ slabs.
42	C	The total fall needed is $4 - (-11) = 15$ degrees, and $15 \div 3 = 5$ hours.
43	D	67.4 rounds to 70 (1 s.f.) and 2.8 rounds to 3 (1 s.f.). $70 \times 3 = 210$ miles. (The exact distance is approximately 188.7 miles.)
44	A	Work each one out: $48 \div 4 = 12$, $36 \div 4 = 9$, $90 \div 9 = 10$, $56 \div 7 = 8$ and $63 \div 9 = 7$. Only 12 is greater than 10, since 10 itself is not greater than 10.
45	C	1 hour 45 minutes is 1.75 hours, so the distance is $240 \times 1.75 = 420$ km.
46	A	If three quarters is 60 then one quarter is $60 \div 3 = 20$, so the whole number is $4 \times 20 = 80$. One fifth of 80 is $80 \div 5 = 16$, so two fifths is $2 \times 16 = 32$.
47	C	If all 20 coins were 10p the total would be £2.00. Each 50p instead of a 10p adds 40p, and the extra is £4.80, so there are $480 \div 40 = 12$ fifty-pence coins.
48	D	After the decimal point the columns run tenths, hundredths, then thousandths. In 3.052 the 5 is the second digit after the point, so it stands for 5 hundredths, which is 0.05. In 3.502 and 3.5 the 5 is in the tenths column, in 5.32 it counts units, and in 0.005 it is thousandths.

49	A	An interior angle and the exterior angle beside it sit on a straight line, so together they make 180° . If the exterior angle is 30° then the interior angle is $180 - 30 = 150^\circ$.
50	C	The steepest fall is the fastest loss. Between 3 pm and 4 pm the line drops from 40 to 22 litres, a loss of $40 - 22 = 18$ litres, far more than in any other hour.