

Maths Mock Test Paper 23 Answers

Q#	Answer	Explanation
1	C	A rectangle with more than one row needs the number to split into two factors that are both bigger than 1. Only 21 does, since $3 \times 7 = 21$ gives 3 rows of 7. The others are all prime numbers, so each can only be laid out in a single line.
2	B	The length is the distance between the two marks, not the reading at the far end, so subtract: $11.4 - 3 = 8.4$ cm. Reading off 11.4 cm would only be right if the nail started at zero.
3	C	Take one brick away from each side of the balance and it still balances. That leaves one brick on one side and the 3 kg weight on the other, so a brick weighs 3 kg.
4	D	All edges of a cube are equal, so the volume is $4 \times 4 \times 4 = 64 \text{ cm}^3$.
5	C	Divide the distance by the time: $180 \div 2 = 90$ km/h.
6	B	XL means ten before fifty, which is 40, and II adds 2 more, so XLII is 42. Reading the X as an extra ten instead of one taken away would give 62, which is the mistake to avoid.
7	D	48 rounds up to 50 (units digit $8 \geq 5$). $50 \times 3 = 150$. (The exact answer is 144, but the estimate by rounding is 150.)
8	D	One sixth of the eggs break, which is $24 \div 6 = 4$ eggs. That leaves $24 - 4 = 20$ unbroken. Answering 4 would give the number that broke rather than the number left.
9	B	Behind means earlier, so take the 5 hours off: from 09:00 to 14:00 is 5 hours, which makes the New York time 09:00. Adding the hours instead would give 19:00.
10	B	Four more than -6 means counting on 4 from -6: -5, -4, -3, -2.

11	D	The triangle is isosceles, so the two base angles are equal. They share $180^\circ - 34^\circ = 146^\circ$, so $x = 146^\circ \div 2 = 73^\circ$.
12	C	Eight of the 15 steps take you from -8 up to 0, and the remaining 7 steps give 7.
13	C	40 minutes is two thirds of an hour, so the distance is $72 \div 3 \times 2 = 48$ km.
14	B	The total is $5 \times 320 = 1,600$ g, and $1,600 \div 1,000 = 1.6$ kg.
15	D	Read each bar against the scale: 45 mm, 30 mm, 25 mm and 20 mm. Adding them gives $45 + 30 + 25 + 20 = 120$ mm altogether.
16	C	19.6 rounds to 20 and 4.2 rounds to 4. $20 \div 4 = 5$. (The exact answer is approximately 4.67, but the estimate is 5.)
17	B	Multiplying comes before adding, so work out $3 \times 4 = 12$ first and then add the 5, giving $5 + 12 = 17$. Adding first would give $8 \times 4 = 32$, which is the wrong order.
18	C	The 8-pack gives $640 \div 8 = 80$ p per battery and the 12-pack gives $900 \div 12 = 75$ p per battery. The saving is $80 - 75 = 5$ p.
19	C	This is the lowest common multiple of 12 and 18. Multiples of 12: 12, 24, 36. Multiples of 18: 18, 36. After 36 minutes it is 9:36.
20	C	The exterior angle is $180^\circ - 150^\circ = 30^\circ$. Exterior angles add up to 360° , so the number of sides is $360^\circ \div 30^\circ = 12$.
21	B	First find how many people came: 10% of 250 is 25, so 80% is $8 \times 25 = 200$ people. Each pays £6, so the money taken is $200 \times 6 = 1,200$, that is £1,200.
22	A	P is at (2, 6) and Q is at (7, 3). The x-coordinate grows from 2 to 7, which is 5 squares to the right, and the y-coordinate falls from 6 to 3, which is 3 squares down.
23	B	Take 6 from both sides: $5x = 35$. Then divide by 5: $x = 7$.

24	B	If the 1st is a Wednesday then the 3rd is the first Friday, and the Fridays run 3, 10, 17 and 24. The next one would be the 31st, and the month has only 30 days, so there are 4 Fridays.
25	B	A quarter of a circle is a right angle, and the television sector is the one that makes a square corner at the centre. A quarter of the 60 pupils is $60 \div 4 = 15$, so 15 pupils watched television. Homework fills half the circle, and reading and games are each smaller than a quarter.
26	D	Work from left to right: $8 \times 3 = 24$, then $24 \times 2 = 48$.
27	B	Two pens cost $2 \times 45 = 90\text{p}$, so three pencils cost 90p and one pencil costs $90 \div 3 = 30\text{p}$. Five pencils therefore cost $5 \times 30 = 150\text{p}$, which is £1.50.
28	C	One full turn carries the wheel the distance all the way round its rim, which is π times the diameter. With π taken as 3 that is $3 \times 70 = 210\text{ cm}$.
29	C	Divide by 1,000: $2,500 \div 1,000 = 2.5$ litres.
30	D	The highest is 6°C and the lowest is -9°C , so the range is $6 - (-9) = 6 + 9 = 15$ degrees.
31	C	289 rounds to 300 and 2.8 rounds to 3. Average speed $\approx 300 \div 3 = 100\text{ km/h}$. (The exact speed is about 103 km/h.)
32	D	Cubing means multiplying a number by itself three times: $10 \times 10 \times 10 = 1,000$.
33	B	The digit 7 is in the ten-thousands column, so its value is $7 \times 10,000 = 70,000$.
34	B	Five pizzas shared between three friends is $5 \div 3$, which is one whole pizza each with 2 left over. Those 2 pizzas split three ways give $2/3$ each, so each friend gets $1 \frac{2}{3}$ pizzas.
35	B	Put both rates into pages a minute before comparing them. Printer A is already given as 24. Printer B manages $390 \div 15 = 26$ pages a minute. So B is the faster of the two, by $26 - 24 = 2$ pages every minute.

36	C	Average speed uses the total distance and the total time, rest included. That gives $45 \div 3 = 15$ km/h.
37	A	$600,000 + 40,000 + 2,000 + 50 + 3 = 642,053$.
38	C	From 16:42 to 19:42 is 3 hours, and from 19:42 to 20:15 is 33 more minutes, making 3 hours 33 minutes.
39	C	Volume is base area $\times$ height, so the base area is $480 \div 6 = 80$ cm ² .
40	A	The minute hand is at 2, which is 60° from the 12. The hour hand is a sixth of the way past 11, at $11 \times 30^\circ + 5^\circ = 335^\circ$. Going the short way round, the gap is $360^\circ - 335^\circ + 60^\circ = 85^\circ$.
41	B	A whole number divides by 4 whenever the number made by its last two digits does. The five choices give 14, 24, 34, 54 and 74, and only 24 divides by 4, since $24 \div 4 = 6$. The number is therefore 324, and $324 \div 4 = 81$.
42	E	The table covers $6 + 10 + 9 + 10 + 5 + 10 = 50$ pupils, and the Year 5 art cell holds 10 of them. That is 10 out of 50, which simplifies to $1/5$.
43	C	Each new square adds 4 more matches, since it needs three new sides and shares one. So the count is 1 for the first upright and then 4 for every square: $4 \times 10 = 40$ matches, plus the single match that closes the left-hand end, giving 41.
44	C	Three goals give $3 \times 40 = 120$ points. The team lost $120 - 60 = 60$ points to fouls, and $60 \div 15 = 4$ fouls.
45	C	Speed is distance divided by time: $315 \div 3.5 = 90$ km/h.
46	D	The first four significant figures are 3, 1, 4, and 1. The next digit is 5 (≥ 5), so we round up the 1 to 2. $3.14159 \rightarrow 3.142$.
47	C	After a 20% reduction the price is 80% of the original. So $80\% = \text{£}36$, which means $10\% = \text{£}36 \div 8 = \text{£}4.50$. The original price (100%) is $\text{£}4.50 \times 10 = \text{£}45$.
48	B	Halve it three times over: half of 64 is 32, half of 32 is 16 and half of 16 is 8. That is the same as dividing by 8, since $64 \div 8 = 8$.

49	B	What takes the time is the gaps between the strikes, not the strikes themselves. Six strikes have 5 gaps, and those take 5 seconds, so each gap is 1 second. Twelve strikes have 11 gaps, so they take 11 seconds – not double, which is the trap.
50	C	If all 6 tickets were for adults the cost would be £72. Each child ticket instead saves £5, and the saving is £20, so there are $20 \div 5 = 4$ children.