

Maths Mock Test Paper 21 Answers

Q#	Answer	Explanation
1	A	The highest common factor of 8 and 12 is 4, so divide both parts by 4: $8 \div 4 = 2$ and $12 \div 4 = 3$, giving 2 : 3.
2	C	Eating 4 of the 12 squares leaves $12 - 4 = 8$ squares, which is 8 out of 12 of the bar. Dividing the top and the bottom by 4 simplifies 8/12 to 2/3. Answering 1/3 would give the part that was eaten instead of the part left.
3	D	x is directly opposite the 125° angle. Vertically opposite angles are equal, so $x = 125^\circ$.
4	C	Apples has 3 circles, which is $3 \times 10 = 30$, and oranges has 2 circles, which is $2 \times 10 = 20$. Together that is $30 + 20 = 50$.
5	C	Three litres is 3,000 ml, which is $3000 \div 500 = 6$ jugfuls. Each jugful takes 20 seconds, so the bucket takes $6 \times 20 = 120$ seconds, and 120 seconds is 2 minutes.
6	C	Each hour is 60 minutes, so 2.5 hours is $2.5 \times 60 = 150$ minutes.
7	A	4,462 rounds down to 4,500 because the tens digit is less than 5.
8	D	Multiply the rows by the chairs in each row: $4 \times 9 = 36$ chairs.
9	A	An estimate settles it: $34 + 30 = 64$, and 29 is only one less than 30, so the answer must be close to 64. It is in fact 63, and Tom is ten out. Looking at the last digit would not have helped, because 63 and 53 both end in a 3.
10	D	A total made up of 8s has to be in the 8 times table. Of the numbers offered only 56 is, because $8 \times 7 = 56$. The others are all even, but being even is not enough – none of them divides by 8 exactly.

11	B	Rounding 612 down to 600 makes the answer smaller, and rounding 29 up to 30 shares it between more, which makes the answer smaller again. Both changes push the same way, so his $600 \div 30 = 20$ sits below the real answer, which is a little over 21.
12	C	The factors of 48 are 1, 2, 3, 4, 6, 8, 12, 16, 24 and 48. Counting them gives 10 factors.
13	B	The red cards give $3 \times (-4) = -12$ and the blue cards give $4 \times 7 = 28$, so the total is $28 - 12 = 16$.
14	C	For $n = 14$ the term is $100 - 98 = 2$, which is still positive. For $n = 15$ it is $100 - 105 = -5$, the first negative term.
15	C	Four buses carry $4 \times 15 = 60$ people, which still leaves 8 people behind, so a fifth bus is needed. Those 8 people take 8 of its 15 seats, so $15 - 8 = 7$ seats are left empty.
16	D	Two of the 6 sections are A, so the other $6 - 2 = 4$ sections are not A. The probability is 4 out of 6, which simplifies to $2/3$.
17	C	From 09:15 to 09:55 is 40 minutes, so the first showing ends at 09:55. A 20-minute gap makes the second start at 10:15, and from 10:15 to 10:55 is 40 minutes. Another gap makes the third start at 11:15, and from 11:15 to 11:55 is 40 minutes, so the last showing ends at 11:55.
18	C	25 minutes is $25 \div 60$ of an hour, so the speed is $5 \div (25/60) = 5 \times 60 \div 25 = 12$ km/h.
19	C	The tank goes from 40 litres down to empty between 4 hours and 6 hours, which is 2 hours. So each hour it loses $40 \div 2 = 20$ litres.
20	E	Stepping up in 3s from -6 gives -3, 0, 3, 6 and then 9, and stepping down gives -9 and -12, so every mark on the line is a multiple of 3. Of the numbers offered only 9 is a multiple of 3.
21	B	Put both fractions over twelfths: $1/4 = 3/12$ and $1/3 = 4/12$. Between them they eat $3/12 + 4/12 = 7/12$ of it, so what is left is $1 - 7/12 = 5/12$. Adding the top and bottom numbers to get $2/7$ is the mistake to avoid.
22	C	Divide the distance by the speed: $180 \div 60 = 3$ hours.

23	A	Going 6 right and 2 down from (2, 3) puts B at (8, 1). The middle of the line lies halfway along in each direction: halfway between 2 and 8 is 5, and halfway between 3 and 1 is 2, so the middle is (5, 2).
24	A	Subtracting 1,000 reduces the thousands digit by one.
25	C	In one hour the car travels $150 \div 2 = 75$ km, so in 5 hours it travels $5 \times 75 = 375$ km.
26	B	Put the numbers in and work each one out: $a + b$ is 8, ab means a multiplied by b , which is 15, $a - b$ is 2, $2a + b$ is 13 and $a + 2b$ is 11. The largest of those is 15, so ab is the answer.
27	C	The base area is $5 \times 3 = 15 \text{ cm}^2$, and the height is $60 \div 15 = 4 \text{ cm}$.
28	C	Multiply by 1,000: $0.75 \times 1,000 = 750 \text{ m}$, which is three quarters of a kilometre.
29	C	68 rounds up to 70 (units digit $8 \geq 5$). $70 \times 4 = 280$ miles. (The exact distance is 272 miles, but the estimate is 280.)
30	E	A number that can be made that way has a factor other than 1 and itself: 21 is 3×7 , 27 is 3×9 , 33 is 3×11 and 39 is 3×13 . Only 41 cannot be split up, because it is a prime number.
31	D	Multiply by 10 and halve: $16 \times 10 = 160$, and half of 160 is 80.
32	C	Girls with a pet come to $5 + 9 = 14$, and boys with a pet come to $6 + 4 = 10$, so the difference is $14 - 10 = 4$. The last column is for pupils with no pet, so it takes no part in the count.
33	B	90 minutes is 1 hour 30 minutes. Counting back from 15:05 gives 13:35, and from 13:35 to 15:05 is 1 hour 30 minutes.
34	C	If the 40° angle is the odd one out, the two equal angles share what is left: $180 - 40 = 140$, and $140 \div 2 = 70$ each. If instead 40° is one of the equal pair, the other equal angle is also 40° and the third is $180 - 80 = 100$. So 40° , 70° and 100° can all appear, but 80° never can.
35	C	Working backwards, divide by 3 to get $27 \div 3 = 9$, then add the 6 to get $9 + 6 = 15$.

36	B	One part is $5 \div 5 = 1$ litre, so there are 3 litres of white and 2 litres of blue. To make the amounts equal, the blue must reach 3 litres, so $3 - 2 = 1$ litre is added.
37	C	Put both lengths into the same unit first. 1.2 km is 1,200 m, and 1,200 m is 120,000 cm. Each stone covers 30 cm of that, so the number needed is $120,000 \div 30 = 4,000$.
38	E	Triangle P has area $8 \times 3 \div 2 = 12$ squares and triangle Q has area $4 \times 6 \div 2 = 12$ squares, so the two are equal.
39	C	The whole amount raised is £300, and each pound buys 5 pencils, so that is $300 \times 5 = 1500$ pencils.
40	C	By 10:30 train A is 30 km ahead. Train B gains $90 - 60 = 30$ km each hour, so it needs $30 \div 30 = 1$ hour, catching up at 11:30.
41	D	Each pen makes $1.80 - 1.20 = 0.60$, which is 60p of profit. The target of £45 is 4,500p, so the number of pens is $4500 \div 60 = 75$. Dividing £45 by the selling price would answer a different question.
42	A	Area is length multiplied by width, so doubling one and halving the other are two changes that cancel each other out. A rectangle 6 cm by 4 cm has an area of $6 \times 4 = 24$, and the new one, 12 cm by 2 cm, has $12 \times 2 = 24$ as well. The perimeter does change, but the question asks about area.
43	D	Each exterior angle is $180^\circ - 165^\circ = 15^\circ$, and the exterior angles add up to 360° . So the number of sides is $360^\circ \div 15^\circ = 24$.
44	D	Read down the Sat column: the 2nd, 9th, 16th, 23rd and 30th. The second Saturday is the 9th, and 10 days after that is $9 + 10 =$ the 19th.
45	D	Multiplying by 11 is the same as multiplying by 10 and adding one more lot: $450 + 45 = 495$.
46	C	If 80% is 32 questions, then 10% is $32 \div 8 = 4$ questions. The whole test is 100%, which is ten of those, so $10 \times 4 = 40$ questions.
47	B	The two known numbers total $-5 + 4 = -1$, so the third must be $-6 - (-1) = -6 + 1 = -5$.

48	B	To round to 5.3 a number must be from 5.25 up to just below 5.35, which rules out 5.24, 5.35, 5.46 and 5.53. That leaves 5.26, and it also rounds to 5 as a whole number, because the digit after the point is 2, which is below 5.
49	C	Take 5 from both sides: $x \div 3 = 7$. Then multiply by 3: $x = 21$.
50	C	Two and a half million written in figures is 2,500,000. After the 2 and the 5 come five more digits, and every one of them is a zero, so Sara writes five zeros.