

Maths Mock Test Paper 10 Answers

Q#	Answer	Explanation
1	E	The more equal pieces a whole is shared into, the smaller each piece must be. A cake cut into 4 gives bigger pieces than the same cake cut into 5, so $\frac{1}{4}$ is more than $\frac{1}{5}$ and Nina eats more. As decimals, $\frac{1}{4}$ is 0.25 and $\frac{1}{5}$ is 0.2.
2	C	Double 40 is 80 and double 5 is 10, so double 45 is $80 + 10 = 90$.
3	D	The sequence goes up in 4s, so the missing term is $11 + 4 = 15$.
4	E	One litre of water has a mass of about 1 kg, so 2 litres is about 2 kg. A mass of 200 g would be about a cupful and 20 kg is heavier than a full suitcase.
5	D	Volume is length $\times$ width $\times$ height, so $6 \times 3 \times 2 = 36 \text{ cm}^3$.
6	B	Ben's share is 5 parts and that comes to 20 sweets, so one part is $20 \div 5 = 4$ sweets. Anna's share is 3 parts, which is $3 \times 4 = 12$ sweets.
7	D	Half of the circle is a semicircle. The juice slice fills exactly half of the pie chart, so juice was chosen by half of the class.
8	E	The multiples of 5 run 5, 10, 15, 20, 25 and so on, ending in 5 and 0 in turn. A number ending in 5 is a whole number of tens plus 5, and every ten is itself a multiple of 5, so the whole number divides exactly by 5. Ella is right.
9	C	Angles around a point add up to 360° . First $140^\circ + 130^\circ = 270^\circ$, so $x = 360^\circ - 270^\circ = 90^\circ$.
10	C	73 has a units digit of 3, which is less than 5, so it rounds down to 70. The others round to 60 (62, 64) or 80 (75, 78).
11	D	The perimeter is $2 \times (13 + 9) = 2 \times 22 = 44 \text{ cm}$.

12	B	A fall of 25% takes off $80 \div 4 = 20$ pounds, leaving $80 - 20 = 60$ pounds. Raising £60 by 25% adds $60 \div 4 = 15$ pounds, giving $60 + 15 = 75$ pounds. The price does not come back to £80 because the second 25% is a quarter of a smaller amount.
13	D	Half of 800 is 400 and half of 50 is 25, so half of 850 is 425.
14	E	Every parallelogram has opposite sides parallel and equal in length, has equal opposite angles, and like any quadrilateral has angles adding to 360° . Its four sides are all equal only in the special case of a rhombus, so that statement is not always true.
15	C	The 11:05 has already gone, so Maya waits for the 14:20. From 11:20 to 14:20 is 3 hours.
16	C	The speed is $36 \div 1.5 = 24$ km per hour, so 60 km takes $60 \div 24 = 2.5$ hours, which is 2 hours 30 minutes.
17	B	Any whole number from 4,450 up to 4,549 rounds to 4,500 when rounded to the nearest 100. A crowd of 4,550 would round up to 4,600 instead, so the largest possible crowd is 4,549.
18	C	The total distance is $120 + 120 = 240$ km and the total time is $2 + 3 = 5$ hours, so the average speed is $240 \div 5 = 48$ km/h.
19	E	A bag of pears costs $a + 3$ pounds. Two bags of apples cost $2a$ pounds, so the total is $2a + a + 3$ pounds, and $2a + a$ is $3a$, giving $3a + 3$.
20	C	10% of 250 is 25 and 2% is 5, so 12% is 30. $250 + 30 = 280$.
21	C	Multiply by 100: $8.4 \times 100 = 840$ cm.
22	D	The 3rd decimal digit is 5, so we round up the 2nd decimal digit. The 2nd decimal digit is 9; rounding up gives 10, which carries over: $7.99 \rightarrow 8.00$.
23	B	The four changes are -4, +7, -9 and +2, which together make a fall of 4 points. Ravi finishes on 6, so he must have started 4 points higher, on 10. Checking from 10: $10 - 4$ gives 6, then $6 + 7 = 13$, then $13 - 9 = 4$, then $4 + 2 = 6$.

24	D	The number of necklaces must divide both 72 and 54, so it is their highest common factor. That is 18, giving 4 red and 3 blue beads on each.
25	C	Time is distance divided by speed: $130 \div 52 = 2.5$ hours, which is 2 hours 30 minutes.
26	E	Sharing between 4 costs each a quarter, and sharing between 5 costs each a fifth. A quarter is one twentieth more of the cost than a fifth, and that one twentieth is £3, so the present costs $3 \times 20 = 60$ pounds. Checking: $60 \div 4 = 15$ and $60 \div 5 = 12$, and $15 - 12 = 3$.
27	A	The scores add to $6 + 7 + 7 + 9 + 11 = 40$, so the mean is $40 \div 5 = 8$. The scores are already in order, so the median is the middle one, which is 7. The mean is larger by $8 - 7 = 1$.
28	B	Dividing by 1,000 moves every digit three places to the right, so 4,500 becomes 4.5.
29	E	The width grows from 15 cm to 24 cm, so it has been multiplied by $24 \div 15 = 1.6$. The height must be multiplied by the same amount for the shape to stay the same, giving $10 \times 1.6 = 16$ cm.
30	C	The ratio has $1 + 2 + 3 = 6$ parts sharing 180° , so one part is 30° . The largest angle is 3 parts, which is $3 \times 30^\circ = 90^\circ$.
31	B	The whole rectangle has an area of $8 \times 5 = 40 \text{ cm}^2$ and the corner cut away has an area of $3 \times 2 = 6 \text{ cm}^2$. What is left is $40 - 6 = 34 \text{ cm}^2$.
32	C	The hour hand is between the 3 and the 4, so the hour is 3. The minute hand points at the 8, and $8 \times 5 = 40$ minutes. The time is 3:40.
33	C	Add 7 to both sides: $2n = 16$. Then divide by 2: $n = 8$.
34	E	The first line is flat, so every point on it has a y-coordinate of 3. The second line is upright, so every point on it has an x-coordinate of 4. The one point lying on both has x-coordinate 4 and y-coordinate 3, which is (4, 3).
35	A	4.58 is greater than 4.56 but less than 4.6.
36	C	Area is half the base times the height, so base $\times$ height = $2 \times 96 = 192$. Then the height is $192 \div 24 = 8$ cm.

37	B	A negative number multiplied by a positive number is always negative, so $p \times q$ must be negative. Both $p \times p$ and $p \div p$ work with two negatives and so come out positive, $q - p$ takes a negative away from a positive and so grows larger, and $p + q$ can be either, depending on which of p and q is bigger.
38	E	The groups below 18 seconds are 12-14 and 15-17, so add those two rows: $5 + 11 = 16$ pupils.
39	A	The angles of a quadrilateral add to 360° . Here they come to 12 lots of x , so $12x$ is 360° and x is $360 \div 12 = 30^\circ$. The largest angle is $4x$, which is $4 \times 30 = 120^\circ$.
40	B	The primes between 30 and 50 are 31, 37, 41, 43 and 47, which is 5 numbers.
41	A	An increase keeps the whole amount, which is 100%, and adds 15% more, making 115% altogether. As a decimal 115% is 1.15, so the amount is multiplied by 1.15. Multiplying by 0.15 would find the increase alone, not the new total.
42	B	From (0, 1) to (4, 9) the line climbs 8 over 4 squares, so it rises $8 \div 4 = 2$ for each square across and the rule is $y = 2x + 1$. At $x = 2$ that gives $2 \times 2 + 1 = 5$, so (2, 5) is on the line.
43	D	To change 0.45 into 45,000, the decimal point must move 5 places to the right. This requires multiplying by 100,000.
44	A	Because they are heading towards each other, the gap between them closes at $18 + 6 = 24$ km every hour. The gap is 24 km, so it closes in $24 \div 24 = 1$ hour.
45	D	One biscuit needs $200 \div 8 = 25$ g, so 20 biscuits need $20 \times 25 = 500$ g.
46	B	Rounding every price up gives a total that is certainly at least as large as the true cost, and that rounded-up total is $5 + 7 + 8 = 20$ pounds. Since even the over-estimate is not more than £20, the true cost must be within budget. Rounding down, or to the nearest pound, can give a total below the true cost, so it proves nothing.

47	A	In 6 years Ben will be 6 years older than he is now and Sam will be 10 years older, so the two ages then are 16 more than Ben's age counted twice. That leaves $40 - 16 = 24$ for two lots of Ben's age, so Ben is $24 \div 2 = 12$ now. Checking: in 6 years Ben is 18 and Sam is 22, and $18 + 22 = 40$.
48	D	Let one part be n , so Tom has $5n$ and Sara has $3n$. Then $2(5n - 40) = 3 \times 3n$, so $10n - 80 = 9n$ and $n = 80$. Sara has $3 \times £80 = £240$, and checking: $£360 : £240 = 3 : 2$.
49	D	$a^2 = (-4) \times (-4) = 16$, then $2 \times 16 = 32$, and finally $32 + 5 = 37$.
50	A	The real departure times are 10:00, 11:15, 11:20 and 13:25. The earliest of these is 10:00, which is FR201.