Maths Mock Test Paper 22 Answers

Q#	Answer	Explanation
1	C	Divide the stickers between the children: 60 ÷ 5 = 12 each.
2	D	Squaring means multiplying a number by itself: 7 × 7 = 49.
3	E	The red sector fills half the circle, so half of the 30 cars were red, which is 15 of them. Blue is plainly a smaller sector than red, green is the smallest of the four, and blue and silver put together still do not reach halfway round.
4	B	A square has 4 equal sides, so each side is 20 ÷ 4 = 5 cm.
5	C	Three lots of 4 make 12. This is the same as working out 3b.
6	C	When the top number is 1, the bigger the bottom number the smaller the fraction, because the whole is cut into more pieces. As decimals the five are 0.333, 0.2, 0.125, 0.4 and 0.375, and the smallest of those is 0.125, which is 1/8.
7	C	Ask how many 6s make 48. Since 6 × 8 = 48, the answer is 8.
8	B	A negative x-coordinate means you move to the left of the origin. Go 3 left and 2 up, which lands on point B.
9	C	The small square at one corner marks a right angle, so the triangle is right-angled. Its three sides are all different lengths, which rules out equilateral and isosceles. No angle is bigger than 90°, so it is not obtuse-angled, and one angle is exactly 90°, so it is not acute-angled either.
10	D	The red beads make 14 ÷ 2 = 7 groups of two. Each of those groups brings 5 white beads with it, so there are 7 × 5 = 35 white beads.
11	C	Working backwards, multiply by 4 to get 18 × 4 = 72, then divide by 6 to get 72 ÷ 6 = 12.

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12	C	If 45% walk, then 100 − 45 = 55 per cent do not. Half of 200 is 100, which covers 50%, and 5% of 200 is 10 more, so 55% is 100 + 10 = 110 people.
13	D	Subtracting a negative number is the same as adding, so 5 − (−3) = 5 + 3 = 8.
14	B	The lawn covers 12 × 8 = 96 square metres and the pond covers 3 × 3 = 9 square metres. The fraction is 9 out of 96, and dividing both numbers by 3 gives 3/32.
15	B	The time is 12 ÷ 5 = 2.4 hours. Since 0.4 of an hour is 0.4 × 60 = 24 minutes, the walk takes 2 hours 24 minutes.
16	D	There are 4 + 9 = 13 parts, so one part is 78 ÷ 13 = 6 marbles. The larger share is 9 parts, which is 9 × 6 = 54.
17	D	The gaps grow by one each time, so after 15 comes 15 + 6 = 21 and then 21 + 7 = 28.
18	C	The tank fills steadily to 40 litres in 2 hours, so after 1 hour it is half full: 40 ÷ 2 = 20 litres.
19	B	Rounding to the nearest 500 sends a number to 2,000 when it lies anywhere from 1,750 up to just below 2,250. Halfway between 1,500 and 2,000 is 1,750, and a number exactly halfway rounds upwards, so 1,750 is the smallest possible.
20	C	Solve 4n − 1 = 43. Adding 1 gives 4n = 44, so n = 11.
21	C	A regular octagon has 8 equal sides, so the perimeter is 8 × 6 = 48 cm.
22	A	Compare the columns in turn. In the tenths column 0.044 has a 0 while the others have a 4, so 0.044 is the smallest. The remaining three have the same tenths digit, so look at hundredths: 0.4 and 0.404 have none but 0.44 has 4, making 0.44 the largest, and the 4 thousandths in 0.404 put it above 0.4.
23	C	Time is distance divided by speed: 105 ÷ 42 = 2.5 hours, which is 2 hours 30 minutes.
24	C	The group size must be a factor of 24: 1, 2, 3, 4, 6, 8, 12, 24. Leaving out 1 and 24 gives 2, 3, 4, 6, 8 and 12, which is 6 possible sizes.

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25	B	He saves 8 × £4.50 = £36, so he still needs £50 − £36 = £14.
26	C	The square marks a right angle of 90°. Angles around a point add up to 360°, so x = 360° − 155° − 90° = 115°.
27	A	Work in millilitres: the bottle holds 1,500 ml and each glass takes 200 ml. Seven glasses use 7 × 200 = 1,400 ml, which leaves 1,500 − 1,400 = 100 ml — not enough to fill an eighth glass.
28	D	The rectangle is 8 − 2 = 6 squares across and 5 − 1 = 4 squares up, so the area is 6 × 4 = 24 squares.
29	C	Follow the line from left to right. It rises from January to February and again to March, but from March to April it falls from 500 down to 400. That is the first fall on the graph, so the month is April.
30	C	Adding 99 is the same as adding 100 then taking away 1: 456 + 100 = 556, and 556 − 1 = 555.
31	D	She starts at −25 m and finishes at 140 m, so the climb is 25 + 140 = 165 m.
32	D	2 minutes 30 seconds is 2.5 minutes, so the copier prints 2.5 × 36 = 90 pages.
33	A	From 20:45 to 22:35 is 1 hour and 50 minutes, so the film ends at 22:35. From 22:35 to 00:00 is 1 hour and 25 minutes, so it finishes that much before midnight.
34	C	First find 1/5 of 25: 25 ÷ 5 = 5. Then multiply by 3: 5 × 3 = 15.
35	C	A year is about 365 days, so ten years is roughly 10 × 365 = 3,650 days. The true figure is a few days more because of leap years, but 3,650 is the right size of answer.
36	C	Pair the 4 and the 5 first, because 4 × 5 = 20. Then 20 × 9 = 180.
37	D	One machine makes 600 ÷ (4 × 5) = 30 items an hour. Six machines working 8 hours make 6 × 8 × 30 = 1440 items.
38	B	The job takes 6 × 40 = 240 tap-minutes, so with 8 taps it takes 240 ÷ 8 = 30 minutes.

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39	C	One metre is 100 cm, and 100 ÷ 2.5 = 40, so 40 small squares fit along each side. The big square therefore holds 40 × 40 = 1,600 of them altogether.
40	B	Take 9 from both sides: 2x = −5 − 9 = −14. Then x = −14 ÷ 2 = −7.
41	C	In half an hour the minute hand goes half way round, which is 180°, while the hour hand creeps half of the way from the 12 to the 1. That step is one twelfth of a turn, so half of it is 15°. The gap left between the hands is 180 − 15 = 165°.
42	D	On this line the y-coordinate is always two thirds of the x-coordinate, because 8 is two thirds of 12. Two thirds of 9 is 6, so (9, 6) lies on the line.
43	B	The ratio splits the class into 7 + 3 = 10 equal parts, and 3 of those parts are pupils who do not walk. The probability is therefore 3 out of 10, or 3/10. Writing 3/7 would compare the two groups with each other instead of with the whole class.
44	B	Angles a and c sit in matching positions at the two crossings, on the same side of the slanting line and on the same side of their own parallel line, so they are corresponding angles and are always equal. Angles b and d are the other size, and each of them makes 180° with a.
45	D	A length recorded as 7 cm to the nearest centimetre can be anything up to 7.5 cm, and one recorded as 4 cm can be up to 4.5 cm. The largest area those allow is 7.5 × 4.5 = 33.75 square centimetres.
46	B	Measured in centimetres the tank is 100 by 60 by 50, so it holds 100 × 60 × 50 = 300,000 cubic centimetres. Since 1,000 cubic centimetres make a litre, that is 300 litres when full, and half of it is 150 litres.
47	C	From 21:50, adding 6 hours gives 03:50 the next day, and adding 25 more minutes gives 04:15.

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48	B	Try £100 as the starting price. Adding 10% makes it £110, but 10% of £110 is £11, which is more than the £10 that was added. Taking it off gives 110 − 11 = 99, one pound below the start, and £1 is 1% of £100. The second percentage is worked out on a bigger amount, which is why the two do not cancel.
49	D	A number has exactly three factors only when it is a prime multiplied by itself. Since it is a multiple of 5, the number is 5 × 5 = 25, whose factors are 1, 5 and 25.
50	C	Call the smaller number n, so the next one is n + 1 and the two together make twice n plus 1. Since that comes to 47, twice the smaller number is 46, so the smaller is 23 and the larger is 24. Checking, 23 + 24 = 47.

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