Maths Mock Test Paper 14 Answers

Q#	Answer	Explanation
1	B	The x-coordinate is written first and here it is 0, so the point has not moved sideways from the origin at all; it has only gone 6 squares up. Every point with an x-coordinate of 0 sits on the y-axis.
2	D	Each teacher is with 6 children, so 4 teachers means 4 × 6 = 24 children.
3	B	Even numbers are all built from twos, so adding two of them gives another even number, as in 6 + 8 = 14. The others fail: 3 + 5 = 8 is even, 3 × 5 = 15 is odd, 6 is an even multiple of 3, and 9 is an odd square number.
4	C	25% means 25 out of 100, which is 25/100. Dividing top and bottom by 25 gives 1/4.
5	D	Counting up from floor −2 gives −1, 0, 1, 2, 3. Two of the five floors are used getting up to the ground floor, and the other three take the lift up to floor 3.
6	A	Multiplying by 10 moves the decimal one place to the right. 0.4 becomes 4.
7	E	Rounding to the nearest 10 gives 60 for everything from 55 up to 64, because a 5 in the units column rounds up. That makes 65 the odd one out: it rounds up to 70.
8	B	Beginners ends at 10:15 and Improvers starts at 10:30. From 10:15 to 10:30 is 15 minutes.
9	D	Grouping 27 cakes into packets of 6 is a division. Four packets hold only 24 cakes, which is not enough, so the answer must be rounded up to 5 packets.
10	B	Blue has 2 whole circles and 1 half circle. Each whole circle is 4 cars, so that is 2 × 4 = 8, and the half circle is 2 more, giving 8 + 2 = 10 cars.

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11	A	The sequence goes up in steps of 6, since 11 − 5 = 6, and adding an even number to an odd number always leaves an odd number: 5 + 6 = 11, 11 + 6 = 17 and 17 + 6 = 23. Had the step been odd, the terms would have taken turns being odd and even, so it is the even step that keeps them all odd.
12	B	In order they are 5, 7, 9, 12, 14, 19. With six numbers there is no single middle one, so take the mean of the third and fourth: 9 + 12 = 21, and 21 ÷ 2 = 10.5.
13	D	The small square is a right angle of 90°. Angles around a point add up to 360°, so x = 360° − 90° − 145° = 125°.
14	C	There are 100 cm in a metre, so 250 ÷ 100 = 2.5 m. There are 10 mm in a centimetre, so 250 × 10 = 2,500 mm. Both conversions are correct.
15	C	The gap from −14 to 6 is 20, and half of 20 is 10. Counting 10 on from −14 gives −4.
16	E	BA210 takes 2 hours 35 minutes, BA340 takes 2 hours 50 minutes and BA455 takes 2 hours 30 minutes. The shortest is BA455.
17	E	Dividing both sides of 12 : 18 by 6 gives 2 : 3 in its simplest form, and 6 : 9, 4 : 6 and 24 : 36 all simplify to 2 : 3 as well. The ratio 3 : 4 is already in its simplest form and is not the same.
18	D	2.9 rounds up to 3. $3^3 = 3 \times 3 \times 3 = 27$. (The exact value of 2.9^3 is 24.389, but the estimate is 27.)
19	C	The bill split three ways is £42 ÷ 3 = £14, and adding the £2 tip gives £16 each.
20	D	2 hours 45 minutes is 2.75 hours, so the distance is 60 × 2.75 = 165 km.
21	C	The wall is 150 cm by 120 cm. Along the bottom 150 ÷ 15 = 10 tiles fit, and up the side 120 ÷ 15 = 8 tiles fit, so altogether 10 × 8 = 80 tiles are needed.
22	C	7.95 rounds to 8 and 8.1 rounds to 8. 8 × 8 = 64. (The exact answer is 64.395, but the estimate is 64.)

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23	B	On the line y = 4 every point is 4 squares up, whatever its x-coordinate, so the line runs flat across the grid. The line x = 4 is the upright one.
24	A	10% of £60 is £6 and half of that is £3, so 15% is 6 + 3 = 9 pounds, which is what Tom found. Building a percentage out of 10% and 5% chunks works for any multiple of 5, whatever the starting amount.
25	B	The first 2 is worth 2 tenths (0.2). The second 2 is worth 2 thousandths (0.002). Subtracting 0.002 from 0.200 gives 0.198.
26	B	Add 3 to both sides: 12 = 4n. Then divide by 4: n = 3.
27	C	Look for points above the 30 line. Weeks 4, 5 and 6 are above it, with 35, 32 and 40 children. Week 2 is exactly 30, which is not more than 30, so the answer is 3 weeks.
28	A	A number that leaves 1 after dividing by 4 and by 6 must be one more than a multiple of both, so it is one more than a multiple of 12. The smallest is 12 + 1 = 13, and 13 ÷ 4 is 3 remainder 1 while 13 ÷ 6 is 2 remainder 1. None of the other numbers is one more than a multiple of 12.
29	B	1.75 m is 175 cm, and 175 − 90 = 85 cm.
30	E	25 × 8 = 200, 50 × 4 = 200, 10 × 20 = 200 and 40 × 5 = 200, but 12 × 15 = 180, so that one is the odd one out.
31	C	A rectangle has equal diagonals but they do not meet at right angles. A rhombus has diagonals that cross at right angles but they are not equal. Only the square has both.
32	B	Adding a negative is the same as subtracting, so 12 + (−20) = 12 − 20 = −8.
33	A	75% is three quarters, so find one quarter and take three of them: 48 ÷ 4 = 12 and 12 × 3 = 36. So 75% of 48 is 36.
34	D	Just after midnight the 24-hour clock uses 00, which stands for 12 o'clock at night. Times before midday are am, so 00:35 is 12:35 am.

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35	D	Each part of squash needs 5 parts of water, so 300 ml of squash takes 300 × 5 = 1,500 ml of water. The drink altogether is 300 + 1,500 = 1,800 ml.
36	C	At 2 pm the car had gone 60 km and by 4 pm it had gone 210 km, so it covered 210 − 60 = 150 km. That took 2 hours, so the average speed is 150 ÷ 2 = 75 km/h.
37	C	Doubling gives 2n and subtracting leaves 2n − 7, which must equal n + 3. Taking one n from each side leaves n − 7 = 3, so the number is 10. Checking, doubling 10 and subtracting 7 gives 13, and 10 + 3 = 13 as well.
38	C	At 24 km/h the cyclist covers 12 km in 12 ÷ 24 = 0.5 hours, which is 30 minutes. Adding the rest gives 30 + 15 = 45 minutes.
39	C	The angles lie on a straight line, so (3x − 20°) + (2x + 10°) + (x + 40°) = 180°. Collecting terms gives 6x + 30° = 180°, so 6x = 150° and x = 25°.
40	C	The area is 5 × 4 = 20 m², so the carpet costs 20 × £18 = £360, and adding the fitting gives £360 + £45 = £405.
41	A	The number must divide by both 3 and 5, so it is a multiple of 3 × 5 = 15. The factors of 15 are 1, 3, 5 and 15, which is exactly four of them. Every larger multiple has more: 30 has eight factors and 45 has six.
42	C	From 21:45 to 06:15 is 8 hours 30 minutes: 2 hours 15 minutes take you to midnight, then 6 hours 15 minutes more reach 06:15.
43	A	Written as a decimal, 5/8 is 5 ÷ 8 = 0.625, which is larger than 0.6. The difference between them is 0.625 − 0.6 = 0.025.
44	C	The whole rectangle is 20 × 12 = 240 m² and the piece removed is 8 × 5 = 40 m², so the area is 240 − 40 = 200 m².
45	E	Putting h = 0 gives C = 5, so £5 is charged even before the boat is used. The 3 is what each hour adds.
46	D	From −6 up to 10 is a gap of 6 + 10 = 16 along the line. Three quarters of that gap is 16 ÷ 4 × 3 = 12, and counting on 12 from −6 reaches 6.

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47	E	If Cal has 1 part then Bob has 3 parts and Ann has 6 parts, making 10 parts altogether. One part is £700 ÷ 10 = £70, so Ann receives 6 × £70 = £420.
48	A	0.8 + 0.03 + 0.004 = 0.834.
49	C	999 is one less than 1,000, so start with 1,000 × 7 = 7,000 and take off the seven extra clips that were counted: 7,000 − 7 = 6,993.
50	C	12 m is 1,200 cm, and 1,200 ÷ 80 = 15 pieces.

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