# Maths Mock Test Paper 1 Answers

| Q# | Answer | Explanation |
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| 1 | B | Three tenths fills the first place after the decimal point and four thousandths fills the third. Nothing goes in the hundredths place in between, so a zero has to hold that place open, giving 0.304. |
| 2 | C | Both parts share a 6, so this is 6 lots of (7 + 3). That is 6 × 10 = 60. |
| 3 | E | 15 out of 20 is the fraction 15/20. Dividing the top and the bottom by 5 gives 3/4, and three quarters written as a percentage is 75%. |
| 4 | A | A number divides exactly by 9 when its digits add up to a multiple of 9. For 126 the digits give 1 + 2 + 6 = 9, so it divides by 9. The other four have digit totals of 8, 13, 8 and 11, and none of those is a multiple of 9. |
| 5 | A | Angles on a straight line add up to 180°. The small square marks a right angle, so 40 + 90 = 130 degrees are used up, leaving x = 180 − 130 = 50°. |
| 6 | E | One kilogram is 1,000 g, so put every parcel into grams: 45 g, 450 g, 500 g, 900 g and 1,200 g. Only 1,200 g is more than 1,000 g, so that is the parcel that is too heavy. |
| 7 | C | The clock reads twenty past eight. From 08:20 to 09:00 is 40 minutes. |
| 8 | C | Walking along the number line from −3 to 2, the whole numbers passed on the way are −2, −1, 0 and 1. That makes 4 of them. The two end numbers are not counted, because the question asks only for the numbers lying between them. |
| 9 | A | Read both bars off the scale up the side: the green bar reaches 15 and the blue bar reaches 8. The difference is 15 − 8 = 7 cars. |
| 10 | E | Round each number to one that is easy to handle: 302 is about 300 and 49 is about 50. Three hundred lots of fifty comes to 15,000, so that is the best estimate. |

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| 11 | E | The terms go up by 6 each time, so the rule starts with 6n. Putting n = 1 into 6n gives 6, which is 1 too many, so 1 must be taken off. The rule is 6n − 1, and it works for the second term too: 12 − 1 = 11. |
| 12 | C | Area is length × width, so the missing side is 60 ÷ 12 = 5 cm. The perimeter is the whole way round the edge: 12 + 5 + 12 + 5 = 34 cm. |
| 13 | D | Every centimetre on the map stands for 5 km on the ground, so 7.5 cm stands for 7.5 × 5 = 37.5 km. |
| 14 | B | The base PQ runs from 1 to 5 across, so it is 4 units long, and the upright QR runs from 1 to 4 up, so it is 3 units. The area of a triangle is half of base × height. Here base × height is 4 × 3 = 12, and half of that is 6 square units. |
| 15 | D | Work each one out in turn: 0.35 × 40 = 14, a quarter of 60 is 15, 30% of 55 is 16.5, 20% of 80 is 16 and two fifths of 45 is 18. The one that comes to exactly 16 is 20% of 80. |
| 16 | C | 2 hours 30 minutes is 2.5 hours, so the speed is 150 ÷ 2.5 = 60 km/h. In the extra hour the lorry covers another 60 km, making 150 + 60 = 210 km in all. |
| 17 | B | Work in pence. Three pens cost 3 × 60 = 180 pence. The whole bill is 240 pence, so the two rubbers together cost 240 − 180 = 60 pence, and one rubber costs 60 ÷ 2 = 30 pence. |
| 18 | D | An octagon can be split into 6 triangles by drawing diagonals from one corner, so its angles add up to 6 × 180 = 1080 degrees. All eight angles of a regular octagon are equal, so each one is 1080 ÷ 8 = 135°. |
| 19 | E | The number of bunches has to divide both 24 and 36 exactly. The factors they share are 1, 2, 3, 4, 6 and 12, and the greatest of those is 12. Each bunch then holds 2 roses and 3 tulips. |
| 20 | B | Brackets come first: 8 − 4 = 4. Multiplying comes next: 3 × 4 = 12. Adding comes last: 5 + 12 = 17. |
| 21 | B | A day holds 60 × 24 = 1440 minutes, so the tap loses 3 × 1440 = 4320 ml. There are 1,000 ml in a litre, so that is 4.32 litres. |

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| 22 | A | The swimming sector fills a quarter of the circle, and a quarter of the 24 pupils is 24 ÷ 4 = 6 pupils. |
| 23 | C | Below sea level counts as a negative, so the submarine starts at −45. Rising 12 m takes it up to −33, and then diving 20 m takes it back down to −53. It is 53 m below sea level. |
| 24 | E | Add 7 to both sides to leave 5x on its own: 28 + 7 = 35, so 5x = 35. Then divide both sides by 5: 35 ÷ 5 = 7, so x = 7. |
| 25 | B | Swapping the digits turns 5,382 into 5,832. The 3 was worth 300 and is now worth 30, a drop of 270, while the 8 was worth 80 and is now worth 800, a rise of 720. The number goes up by 720 − 270 = 450. |
| 26 | A | From 07:45 to 08:40 is 55 minutes on Bus A. From 09:05 to 10:05 is 1 hour on Bus C, which is 60 minutes. The difference is 60 − 55 = 5 minutes. |
| 27 | D | The perimeter of the rectangle is 10 + 6 + 10 + 6 = 32 cm. The square has the same perimeter shared between its four equal sides, so each side is 32 ÷ 4 = 8 cm. Its area is then 8 × 8 = 64 cm². |
| 28 | D | Twenty packs hold 20 × 12 = 240 books, which is not quite enough. Twenty-one packs hold 21 × 12 = 252 books, which is enough, so 21 packs are needed. |
| 29 | E | Amy has 5 parts and Ben has 3, so Amy has 2 parts more than Ben. Those 2 extra parts are worth 16, so one part is 16 ÷ 2 = 8 pounds. Amy has 5 parts, which is 5 × 8 = 40 pounds. |
| 30 | A | Moving 3 squares to the right adds 3 to the across value: 1 + 3 = 4. Moving 2 squares down takes 2 off the up value: 4 − 2 = 2. So P lands on (4, 2). |
| 31 | D | The digits after the decimal point reach the hundredths place, so 0.16 means 16 hundredths, which is the fraction 16/100. Dividing the top and the bottom by 4 gives 4/25. |
| 32 | D | To the nearest 10 it would be 8,460 and to the nearest 100 it would be 8,500, so neither of those gives 8,000. Rounding to the nearest 1,000 is decided by the hundreds digit, which is 4. Because 4 is less than 5 the number rounds down to 8,000, which is what the newspaper printed. |

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| 33 | B | A right angle is a square corner. The parallelogram, the rhombus, the triangle and the hexagon have no square corners at all, as every one of their corners leans over. Shape B is a right-angled trapezium: its upright side meets the bottom at a square corner and the top at another, so it has exactly two right angles. |
| 34 | E | Speed in km/h needs the time in hours. 24 minutes is 24 ÷ 60 = 0.4 of an hour. Speed is distance divided by time, so 2 ÷ 0.4 = 5 km/h. |
| 35 | E | Make the numbers friendlier before multiplying. Since 25 × 4 = 100 and 36 ÷ 4 = 9, the sum is the same as 100 lots of 9, which is 900. |
| 36 | A | The gaps between the terms are 4, 6 and 8, so each gap is 2 bigger than the one before. The gaps carry on 10, 12, 14, 16, which makes the terms 2, 6, 12, 20, 30, 42, 56, 72. The 8th term is 72. |
| 37 | A | The area of a parallelogram is base × perpendicular height, not base × slanting side. So the area is 10 × 4 = 40 cm². The 6 cm side is there to catch out anyone who simply multiplies the two numbers on the diagram. |
| 38 | C | Call Ali's share one part. Ben has two parts and Cara has one part plus 4, so between them the children have 4 parts and 4 extra sweets. Taking the 4 extra away leaves 40 − 4 = 36 sweets for the 4 parts, so one part is 36 ÷ 4 = 9 sweets. Cara has one part plus 4, which is 9 + 4 = 13. |
| 39 | C | The factors of 12 are 1, 2, 3, 4, 6 and 12. Of the eight numbers on the spinner, five of them are factors of 12: 1, 2, 3, 4 and 6. So the probability is 5/8. |
| 40 | C | Adding 20% multiplies the price by 1.2, and then taking 20% off multiplies it by 0.8. Together that is 1.2 × 0.8 = 0.96, so the bike ends up at 96% of its first price, not back where it started. If 96% is 192 then 1% is 192 ÷ 96 = 2 pounds, so the first price was 200 pounds. |
| 41 | D | Go through the two-digit multiples of 7 and add the digits of each: 14 gives 5, 21 gives 3, 28 gives 10, 35 gives 8, 42 gives 6, 49 gives 13 and 56 gives 5 + 6 = 11. Only 56 works. |

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| 42 | A | The ratio 2 : 7 has 2 + 7 = 9 parts, and 45 ÷ 9 = 5 pens in each part. So there are 2 × 5 = 10 red pens and 7 × 5 = 35 blue ones. To match the blue pens there must be 35 red, so 35 − 10 = 25 more are needed. |
| 43 | B | The three angles of a triangle add up to 180°, and the right angle uses 90° of that, leaving 180 − 90 = 90° for x and 2x together. Those two make 3 lots of x, so x = 90 ÷ 3 = 30°. |
| 44 | C | Multiplying comes first, and a negative times a positive is negative, so (−6) × 4 is −24. Subtracting a negative is the same as adding, so −24 − (−9) becomes −24 + 9, which is −15. |
| 45 | D | Going from A to M the across value climbs by 4, from −3 to 1, and the up value climbs by 3, from −2 to 1. B is the same step again on from M: 1 + 4 = 5 across and 1 + 3 = 4 up. So B is (5, 4). |
| 46 | D | The area of the field is 40 × 25 = 1000 square metres. One hectare is 10000 square metres, so the field is 1000 ÷ 10000 = 0.1 of a hectare. |
| 47 | E | From 14:35 to 17:05 is 2 hours 30 minutes, which is 150 minutes. Taking off the stop leaves 150 − 30 = 120 minutes of moving, which is 2 hours. The average moving speed is therefore 130 ÷ 2 = 65 km/h. |
| 48 | B | Take off the fixed charge first: 17 − 3 = 14 pounds is left to pay for the miles. Each mile costs 1.40 pounds, so the journey was 14 ÷ 1.4 = 10 miles. |
| 49 | B | Work backwards, turning each step round. Before dividing by 3 the number was 5 × 3 = 15. Before subtracting 7 it was 15 + 7 = 22. Before doubling it was 22 ÷ 2 = 11. |
| 50 | A | Cutting the cube gives 4 × 4 × 4 = 64 small cubes. The ones with no paint are those buried completely inside, and stripping one painted layer from every face leaves a block 2 by 2 by 2. That is 2 × 2 × 2 = 8 cubes. |

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