11+ Practice Test Answers

11+ Maths Test 20

Question	Answer	Explanation	Marks
1	Triangular prism	To determine the correct answer, we need to understand the properties of each shape: 1. A triangular prism has 2 triangular bases and 3 rectangular faces, giving it a total of 5 faces. It has 9 edges (3 on each of the 2 bases and 3 connecting the bases) and 6 vertices (3 on each base). 2. A rectangular pyramid has 1 rectangular base and 4 triangular faces, giving it a total of 5 faces. However, it has 8 edges (4 on the base and 4 connecting the base to the apex) and 5 vertices (4 on the base and 1 at the apex). 3. A pentagonal prism has 2 pentagonal bases and 5 rectangular faces, giving it a total of 7 faces. It has 15 edges (5 on each of the 2 bases and 5 connecting the bases) and 10 vertices (5 on each base). 4. A hexagonal pyramid has 1 hexagonal base and 6 triangular faces, giving it a total of 7 faces. It has 12 edges (6 on the base and 6 connecting the base to the apex) and 7 vertices (6 on the base and 1 at the apex). Therefore, the solid object with 5 faces, 9 edges, and 6 vertices is a triangular prism.	1
2	5x + 5	To determine which equation could not be Amelia's, we need to substitute $x = 4$ into each equation and check if the result is 20. 1. 5x + 5: When $x = 4$, 5x + 5 = 20 + 5 = 25. This is not Amelia's equation. 2. x^2 + 4: When $x = 4$, x^2 + 4 = 4^2 + 4 = 16 + 4 = 20. This could be Amelia's equation. 3. 6x - 4: When $x = 4$, 6x - 4 = 6 × 4 - 4 = 24 - 4 = 20. This could be Amelia's equation. 4. 3x + 8: When $x = 4$, 3x + 8 = 3 × 4 + 8 = 12 + 8 = 20. This could be Amelia's equation. Therefore, the equation that could not be Amelia's is 5x + 5, as it does not equal 20 when $x = 4$.	1
3	Square-based pyramid	The shape John is describing has a square base, which eliminates the tetrahedron and octahedron options, as they do not have square bases. Between the triangular prism and the square-based pyramid, only the square-based pyramid has triangular faces that meet at a single point (the apex). A triangular prism has two triangular bases and three rectangular faces, which do not meet at a point. Therefore, the shape John is thinking of is a square-based pyramid.	1

4	3(x + 5) cm	Let's solve this step by step: 1. Initially, the sunflower is x cm tall. 2. After the first week, the sunflower grows by 5 cm. So, its height after the first week is x + 5 cm. 3. After the second week, the sunflower's height is triple what it was at the start. This means we need to multiply the initial height (x) by 3. 4. The correct expression for the sunflower's height after the second week is: 3(x + 5) cm. This is because we first add the growth (5 cm) to the initial height (x), and then multiply the result by 3 to get the final height.	1
5	37	To find the number of bracelets Amelia made, we need to divide the total time she spent making bracelets by the time it takes her to make each bracelet. Total time spent making bracelets: 148 minutes Time to make each bracelet: 4 minutes Number of bracelets = Total time ÷ Time per bracelet Number of bracelets = 148 ÷ 4 = 37 Therefore, Amelia made 37 bracelets in 148 minutes.	1
6	2:40 pm	Liam swims for 120 seconds, which is equal to 2 minutes, and then rests for 3 minutes. Each swim-rest cycle takes: 2 minutes + 3 minutes = 5 minutes. He repeats this cycle 5 times, so the total time taken is: 5 cycles × 5 minutes per cycle = 25 minutes. Liam starts swimming at 2:15 pm, and the session lasts for 25 minutes. To find the finish time, we add 25 minutes to the start time: 2:15 pm + 25 minutes = 2:40 pm. Therefore, Liam finishes his swimming session at 2:40 pm.	1
7	15:00	The film is 120 minutes long, and there are three commercial breaks that split it into four equal parts. To find the length of each part, we divide the total length of the film by the number of parts: 120 minutes ÷ 4 = 30 minutes Each part of the film, including the commercial breaks, is 30 minutes long. Amir starts watching the film at 14:30, so the first commercial break will begin 30 minutes later, at 15:00.	1

8	0.25 mol/L	To find the original concentration, we need to work backwards from the final concentration and the dilution factor. The dilution factor is 100, which means the solution was diluted by dividing the original concentration by 100. We can express this as an equation: Original concentration ÷ 100 = 2.5×10^{-3} mol/L To solve for the original concentration, we multiply both sides of the equation by 100: Original concentration = (2.5×10^{-3} mol/L) × 100 Original concentration = 2.5×10^{-1} mol/L 2.5×10^{-1} mol/L is equal to 0.25 mol/L Therefore, the original concentration of the solution before dilution was 0.25 mol/L.	1
9	17:15	To find the arrival time, we need to add the journey duration to the departure time. Departure time: 14:35 Journey duration: 2 hours and 40 minutes First, let's add the hours: 14:35 + 2 hours = 16:35 Now, let's add the minutes: 16:35 + 40 minutes = 17:15 Therefore, the train is due to arrive in Manchester at 17:15.	1
10	5.85 kg	To find the total weight of the wedding cake, we need to add the weights of all three tiers together. Bottom tier (large rectangular sponge cake): 2.75 kg Middle tier (medium-sized circular fruit cake): 1.92 kg Top tier (small square chocolate cake): 1.18 kg Total weight = 2.75 kg + 1.92 kg + 1.18 kg = 5.85 kg Therefore, the total weight of the wedding cake is 5.85 kg.	1