**MathsMind 2017**

**Year 10 Questions**

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| **Question 1**  **The sum of five consecutive odd numbers is 485.**  **What is the largest of the five numbers?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| Image result for family of five**Question 2**  **A family of 5 people is lining up to have a photo taken.**  **How many different ways could they line up?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| Image result for gas tank**Question 3**  **A petrol tank is one quarter full. After adding 10 litres it is now two thirds full. Petrol costs $1.80 per litre.**  **Calculate how much extra it will cost to fill the rest of the tank.** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 4**  **Rewa placed the numbers 1 to 6 in the fraction multiplication below, first to get the biggest answer, then to get the smallest answer, and finally she found the difference between these answers.**          **Find Rewa’s final answer.** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 5**  **Jack and Jill are sharing the same training lane in a 25 metre long swimming pool. They start swimming at the same time. Jack takes 30 seconds per length and Jill takes 25 seconds per length. How long will it take before they are both back together at the start point again and how far will Jill have swum by then?** | | | | |
| **Attempt 1**  **Time:**  **Jill:** | **Attempt 2**  **Time:**  **Jill:** | **Attempt 3**  **Time:**  **Jill:** | **Attempt 4**  **Time:**  **Jill:** | **Attempt 5**  **Time:**  **Jill:** |

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| **Question 6**  **Zac continues to place regular pentagon as shown until he has made a ring. How many pentagons does he use altogether and what is the angle between pentagons?** | | | | |
| **Attempt 1**  **Pentagons:**  **Angle:** | **Attempt 2**  **Pentagons:**  **Angle:** | **Attempt 3**  **Pentagons:**  **Angle:** | **Attempt 4**  **Pentagons:**  **Angle:** | **Attempt 5**  **Pentagons:**  **Angle:** |
| **Question 7**  **A square (S1) is drawn inside a circle so that its vertices touch the circumference. Another square (S2) is drawn outside the same circle so that the four sides are all tangents to the circle. This is shown in the diagram.**  **The diameter (d) of the circle is cm. What is the area (in cm2) of each square?** | | | | |
| **Attempt 1**  **S1:**  **S2:** | **Attempt 2**  **S1:**  **S2:** | **Attempt 3**  **S1:**  **S2:** | **Attempt 4**  **S1:**  **S2:** | **Attempt 5**  **S1:**  **S2:** |

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| **Question 8**  **Peter, John, Mary and Sue went out for dinner. They all ordered different dishes. The orders were; Chicken, Vegetarian, Steak and Fish.**  **• Peter did not order vegetarian**  **• Mary sat next to her husband who ate fish**  **• Sue cannot eat steak. Her brother ate vegetarian.**  Image result for dinner setting**• John doesn't like fish.**  **Who ordered which meal?** | | | | |
| **Attempt 1**  **C:**  **V:**  **S:**  **F:** | **Attempt 2**  **C:**  **V:**  **S:**  **F:** | **Attempt 3**  **C:**  **V:**  **S:**  **F:** | **Attempt 4**  **C:**  **V:**  **S:**  **F:** | **Attempt 5**  **C:**  **V:**  **S:**  **F:** |

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| **Question 9**  **The mean temperature for the first four days of a working week (Monday – Thursday) was 18˚C and for the last four days of the week (Tuesday – Friday) it was 20˚C.**  **What was the difference in temperature between Monday and Friday?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 10**  **Two men live in the same house and work at the same office. The younger man takes 20 minutes to walk to work and the older man takes 30 minutes. If the older man leaves for work 5 minutes before the younger man, when will the younger man overtake the older man?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 11**  **Two squares have a combined area of 180 cm2. If one square is four times the area of the other, then find the total perimeter of the two squares.** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| Image result for prime numbers**Question 12**  **Find the smallest prime number that is equal to the sum of two prime numbers and is also equal to the sum of three different prime numbers.** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 13**  **Reflect the coordinate (5,12) in the x and y axis to make three points. Join these points to make a right-angled triangle.**  **What is the perimeter of this triangle?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| Image result for 2017**Question 14**  **How many different numbers can be formed from the digits 2, 0, 1, and 7 by using each digit once only?**  **What is the sum of these numbers?** | | | | |
| **Attempt 1**  **Numbers:**  **Sum:** | **Attempt 2**  **Numbers:**  **Sum:** | **Attempt 3**  **Numbers:**  **Sum:** | **Attempt 4**  **Numbers:**  **Sum:** | **Attempt 5**  **Numbers:**  **Sum:** |

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| **Question 15**  **Find the positive solution to the equation:** | | | | |
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| Image result for rubiks**Question 16**  **Rachel has 350 little cubes. Rachel uses these cubes to make larger cubes. What is the smallest number of full cubes that she could make from the smaller cubes and what are their sizes?** | | | | |
| **Attempt 1**  **Cubes:**  **Sizes:** | **Attempt 2**  **Cubes:**  **Sizes:** | **Attempt 3**  **Cubes:**  **Sizes:** | **Attempt 4**  **Cubes:**  **Sizes:** | **Attempt 5**  **Cubes:**  **Sizes:** |

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| Image result for ferris wheel**Question 17**  **An employee at an amusement park notes the following:**   * **There are 1600 visitors in a day** * **800 visitors went on the roller coaster** * **700 visitors went on the Ferris wheel ride** * **600 did not go on either of these rides**   **Use this information to find out how many visitors went on both rides.** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| Image result for raindrops**Question 18**  **During a vacation, it rained on thirteen days, but when it rained in the morning the afternoon was fine, and every rainy afternoon was preceded by a fine morning. There were eleven fine mornings and twelve fine afternoons. How long was the vacation?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |
| **external image <strong>turtle</strong>-<strong>clip</strong>-<strong>art</strong>-4ncBLGBTA.pngQuestion 19**  **A very old Galapagos Tortoise is 72 years and 72 months and 72 weeks and 72 days old.**  **How old will the tortoise be at its next birthday?** | | | | |
| **Attempt 1** | **Attempt 2** | **Attempt 3** | **Attempt 4** | **Attempt 5** |

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| **Question 20**  **The same rule was used in the following sequences.**  **Sequence A: 1, 2, 3, 5, 8**  **Sequence B: 1, 5, 6, 11, 17**  **Sequence C: 1, x, y, z, 26**  **Find the values of the terms x, y, and z** | | | | |
| **Attempt 1**  **x:**  **y:**  **z:** | **Attempt 2**  **x:**  **y:**  **z:** | **Attempt 3**  **x:**  **y:**  **z:** | **Attempt 4**  **x:**  **y:**  **z:** | **Attempt 5**  **x:**  **y:**  **z:** |

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| **Tie Breaker:**  **A farmer has chickens and goats on her farm. She counts 75 heads and 270 legs. How many chickens and how many goats does the farmer have?** | | | | |
| **Attempt 1**  **Chickens:**  **Goats:** | **Attempt 2**  **Chickens:**  **Goats:** | **Attempt 3**  **Chickens:**  **Goats:** | **Attempt 4**  **Chickens:**  **Goats:** | **Attempt 5**  **Chickens:**  **Goats:** |