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International Mathematics Assessments for Schools

2015 MIDDLE PRIMARY DIVISION FIRST ROUND PAPER

Time allowed：75 minutes

INSTRUCTION AND INFORMATION

GENERAL

1. Do not open the booklet until told to do so by your teacher.
2. No calculators, slide rules, log tables, math stencils, mobile phones or other calculating aids are permitted. Scribbling paper, graph paper, ruler and compasses are permitted, but are not essential.
3. Diagrams are NOT drawn to scale. They are intended only as aids.
4. There are 20 multiple-choice questions, each with 5 choices. Choose the most reasonable answer. The last 5 questions require whole number answers between 000 and 999 inclusive. The questions generally get harder as you work through the paper. There is no penalty for an incorrect response.
5. This is a mathematics assessment, not a test; do not expect to answer all questions.
6. Read the instructions on the answer sheet carefully. Ensure your name, school name and school year are filled in. It is your responsibility that the Answer Sheet is correctly coded.
7. When your teacher gives the signal, begin working on the problems.

THE ANSWER SHEET

1. Use only pencils.
2. Record your answers on the reverse side of the Answer Sheet (not on the question paper) by FULLY filling in the circles which correspond to your choices.
3. Your Answer Sheet will be read by a machine. The machine will see all markings even if they are in the wrong places. So please be careful not to doodle or write anything extra on the Answer Sheet. If you want to change an answer or remove any marks, use a plastic eraser and be sure to remove all marks and smudges.

INTEGRITY OF THE COMPETITION

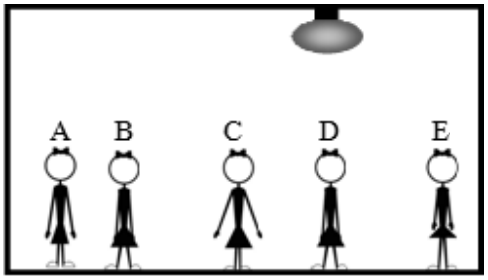
The IMAS reserves the right to re-examine students before deciding whether to grant official status to their scores.

2015 MIDDLE PRIMARY DIVISION FIRST ROUND PAPER

Questions 1-10, 3 marks each

1. What is the value of $2015-116$?
（A）1889　（B）1890　（C）1898　（D）1899　（E）1989

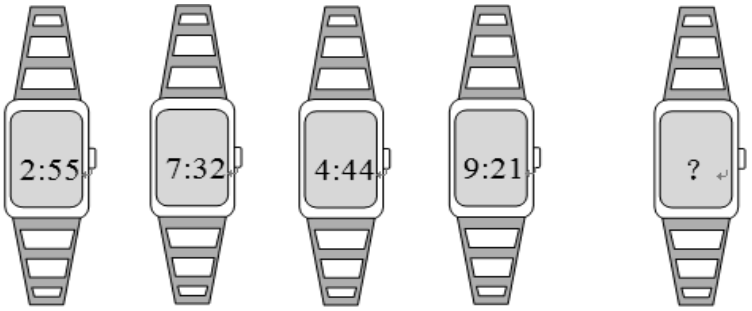
2. The diagram shows five children of equal height standing in a row under a street lamp. Which of them casts the shortest shadow?



（A）A　（B）B　（C）C　（D）D　（E）E

3. Anne ate half of a box of biscuits and then half of the remaining biscuits. If only 1 biscuit is left, how many biscuits were there originally?
（A） 4　（B） 6　（C） 8　（D） 10　（E）12

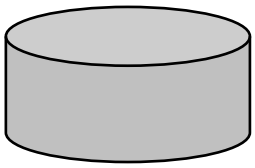
4. The sum of the digits displaced on each of the five watches is the same. Which of the following can be the time displayed on the last watch?



（A）6：29　（B）8：31　（C）9：37　（D）10：00　（E）11：57

5. Eight pop bottles can be traded in for a pencil. What is the maximum number of pencils that can be obtained from 34 pop bottles?
（A） 1　（B） 2　（C） 3　（D） 4　（E）5

6. What is the minimum number of straight cuts required to divide a cylindrical cake into eight identical pieces?



（A） 1　　（B） 2　　（C） 3　　（D） 4　　（E）5

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7. The product of two two-digit multiples of 10 is 2000. What is their sum?
（A）120　　（B）105　　（C）100　　（D）90　　（E）80

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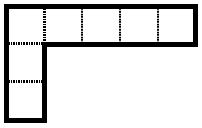
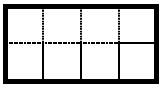
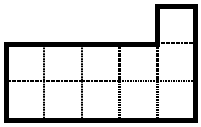
8. Which of the following figures can be combined with the given one to form a square?



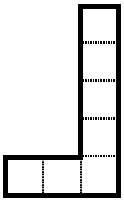
（A）



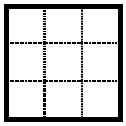
（B）



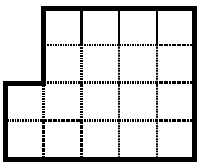
（C）



（D）



（E）



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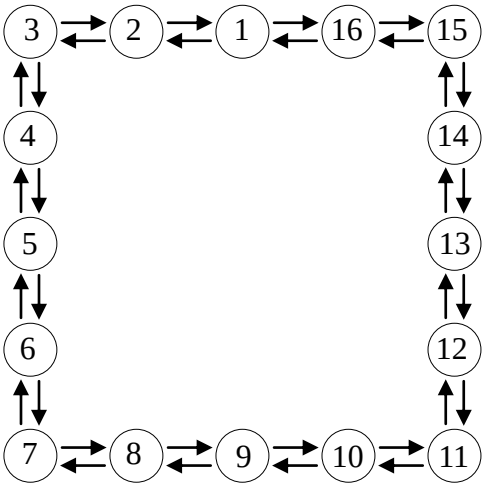
9. The subway system of a certain city consists of 16 stations in a closed loop, with trains going in both directions. The fare is 1 dollar for a ride of 1 station, 2 dollars for a ride of 2 or 3 stations, 3 dollars for a ride of 4 or 5 stations, 4 dollars for a ride of 6 or 7 stations, and 5 dollars for a ride of 8 or more stations. What is the minimum cost for going from Station #2 to Station #14?



（A） 1　　（B） 2　　（C） 3
（D） 4　　（E）5

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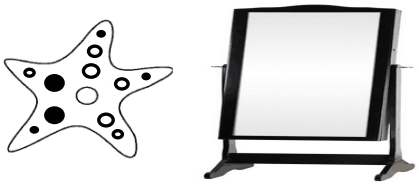
10. Climbing the stairs, a boy takes 60 seconds to go from the 1st floor to the 4th floor. Assuming that the distance between consecutive floors is the same and the boy continues to climb at the same uniform speed as before, how many more seconds will he take to reach the 8th floor?

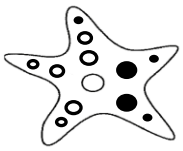
（A）60　　（B）80　　（C）100　　（D）110　　（E）120

Questions 11-20, 4 marks each

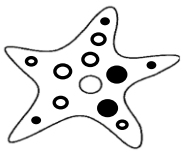
11. Which of the following figures is the mirror reflection of the given figure?



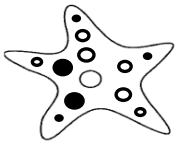
（A）



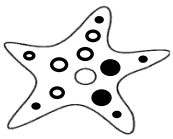
（B）



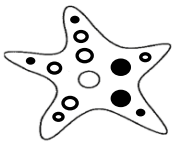
（C）



（D）

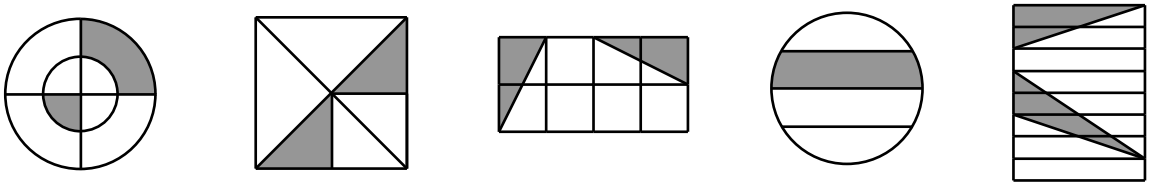


（E）



12. Of the following figures, which one **does not** have exactly $\frac{1}{4}$ of its area shaded?

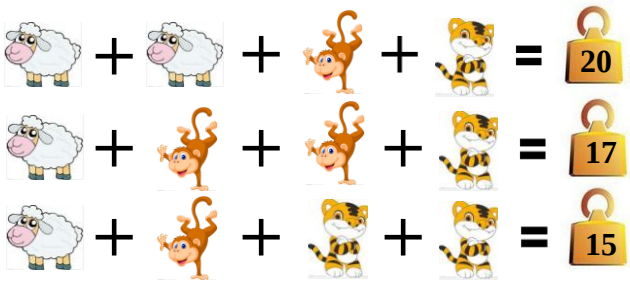
（A）　（B）　（C）　（D）　（E）



13. A, B and C share 36 grapes. If A gives 10 to B and B then gives 8 to C, each has the same number of grapes. How many more grapes than C did A have initially?

（A）14　　（B）16　　（C）18　　（D）20　　（E）22

14. The total weights of three groups of four animals are recorded as shown. Each animal of the same type has the same weight. What is the weight of each sheep?



（A） 2　　（B） 4　　（C） 5　　（D） 7　　（E）9

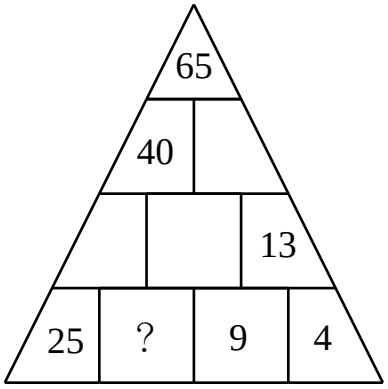
15. A number is larger than another number by 416. The larger number is 9 times as large as the smaller number. What is the sum of these two numbers?

（A）468　　（B）500　　（C）520　　（D）530　　（E）572

16. Every student consumes water at a constant rate. If a jug containing 420 litres of water is just sufficient to supply 20 students for 7 days, for how many days can the same jug supply 28 students?

（A） 3　　（B） 4　　（C） 5　　（D） 6　　（E）7

17. In the number triangle shown, every number not on the bottom row is equal to the sum of the two numbers below it. What is the number represented by the “?” mark?



（A）3　　（B）4　　（C）8　　（D）16　　（E）26

18. Three cups of equal value are the door prizes won by five people. Since the cups form a set, it is decided that a husband and wife pair among the five friends should get them. In return, the couple offers 1800 dollars to be shared equally by the other three friends. If each person has received an equal share, what is the value, in dollars, of each cup?

（A）900　　（B）1000　　（C）1200　　（D）1300　　（E）1500

19. What is the maximum value of the expression $(\ )\times(\ )+(\ )-(\ )$ if a different number chosen from 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 is used to fill each bracketed space?

（A）81　　（B）88　　（C）91　　（D）97　　（E）99

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20. How many of the following statements are correct?

A： The sum of your age on your birthday in 2015 and your birth year must be 2015.

B： If today is Tuesday, then 217 days later it will again be Tuesday.

C： If we multiply 2015 by 8888 and then add 2015, the sum must be odd.

D： If the sum of the ages of three people is odd, then the sum of their ages a year later must be even.

（A）0　　（B）1　　（C）2　　（D）3　　（E）4

Questions 21-25, 6 marks each

21. What is the total number of digits used to write down the first 31 positive integers?

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22. There are tokens of weight 1 gram and tokens of weight 4 grams. At least how many tokens must be used in order to balance an object of weight 103 grams, if tokens may also be placed on the same pan as the object?

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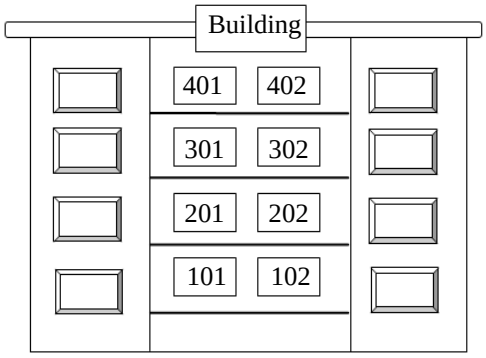
23. There are two classrooms on each of four floors in the school building, *x*01 and *x*02 where *x* is the floor number. Martial Arts and Drama are on the first floor. Calligraphy and Fine Arts are on the same floor. Music is directly above Fine Arts and Painting is directly above Calligraphy. Modeling is directly above Painting. Neither Martial Arts nor Music is in an odd-numbered room. In which room is Dancing?



24. During a certain period, each morning and afternoon is either wet or dry. The total number of wet mornings and wet afternoons is 9. There are 8 dry mornings and 7 dry afternoons A wet afternoon always follows a dry morning. In how many days during this period are both morning and afternoon dry?

25. A standard deck of cards consists of two Jokers and thirteen cards in each of the four suits: Spades ♠, Hearts ♥, Diamonds ♦ and Clubs ♣. What is the minimum number of cards one must draw at random to ensure that six cards of the same suit are drawn?

* * *