
NMCP 17/18 Admission Test 5-6 (60 min)

1. What number makes the statement true?

$$3300 - 330 = \underline{\quad} \times 33$$

Answer

2. Choose any two numbers from 150 to 350. Add 382 to both of your numbers and then divide the results by 2. What is the greatest difference that you can obtain when you subtract the two final results?

Answer

3. Two trains leave from the same station at the same time, moving in opposite directions. One train averages 95 km/h, and the other train averages 105 km/h. How long after leaving the station will the trains be 400 km apart?

Answer

4. The number 55 was multiplied by a 55-digit number containing only ones. What is the sum of the digits of the product?

Answer

5. Two friends have a total of 60 coins. If one friend gives $\frac{1}{4}$ of his coins to the other, they will have an equal number of coins. How many coins does each friend have?

Answer

(Separate your answers by a comma)

6. What is the numeric value of \overline{RSM} if $\overline{RS} + \overline{SM} + \overline{MR} = \overline{RSM}$?

Answer

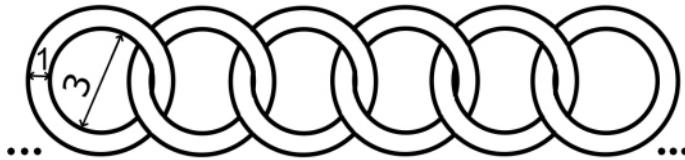
7. One-quarter of the Math Olympiad participants are two-thirds of the Genius Circle students. Eight Genius Circle students did not participate in the Olympiad. What is the total number of students who participated in the Math Olympiad?

Answer

8. A triangle, a square, and a circle lie in the same plane. What is the maximum number of intersection points that can occur?

Answer

9. A chain contains 30 identical circular links (see the picture below). The inner diameter of each link is 3 centimeters, and the thickness of each link is 1 centimeter. What is maximum length of the chain?

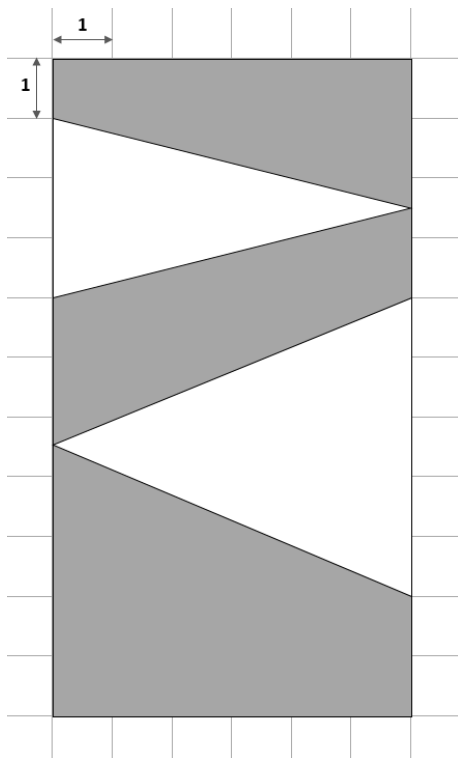


Answer

10. A bowl has 85 pieces of candy. Nineteen children empty the bowl of candy. Some children take 3 pieces, some children take 5 pieces, and 1 child takes 7 pieces of candy. How many children take 3 pieces of candy?

Answer

11. What is the area of the shaded part of the figure (in square units)?



Answer

-
12. You have a 25-cm long piece of ribbon. How many cuts do you need to make to obtain the greatest number of pieces, where each piece is a different length and the length of each piece is a whole number, in centimeters?

Answer

13. Seven Grandmasters participated in the Chess Tournament 2017. Each Grandmaster played every other Grandmaster exactly once. What is the total number of games played during the tournament?

Answer

14. Five children sit around a circular table. The chairs are numbered in order from 1 to 5. Kevin sits next to both Leon and Melinda. Nick sits next to both Leon and Olga. The numbers on Kevin's and Melinda's chairs add up to 6. Who sits in the chair numbered 3? (Write the name in the box.)

Answer

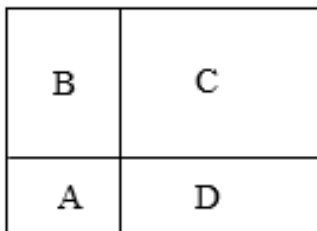
15. The digit 5 appears 18 times in the page numbers of a book. What is the minimum number of pages in the book?

Answer

16. What is the least natural number that is greater than 10, and has a remainder of 5 when divided by 6, when divided by 9, and when divided by 12?

Answer

17. In the figure below, the areas of rectangles A, B, and C are 12, 24, and 40, respectively. Find the area of rectangle D.



Answer

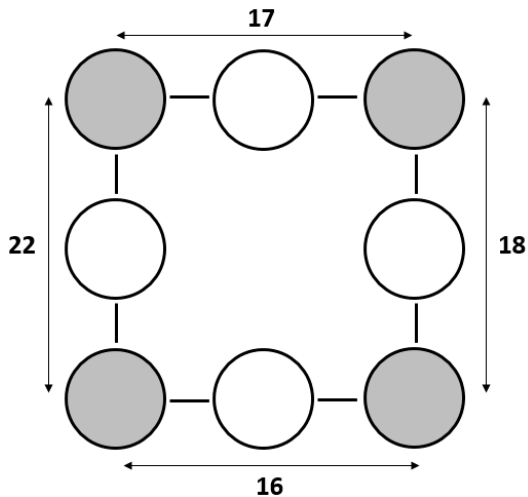
18. A bag contains 3 red, 5 black, and 7 white balls. You take them out, one at a time, without looking. What is the least number of balls you need to take out of the bag to be sure of getting at least one ball of each color?

Answer

19. Two digits of the 5-digit number $\overline{74*9*}$ are missing. Fill in the missing digits so that the number obtained is the greatest possible number that is divisible by 45.

Answer

20. Each of the 8 circles contains a different whole number. The sum of the 8 numbers is 51. The sums of the 3 numbers along each side of the square are shown on the diagram. What is the sum of the numbers in the shaded circles?



Answer

21. A defective scale shows a false weight that always differs from the actual weight by a few ounces (either greater or lesser). When a box is put on the scale it shows 15 ounces. When a bag is put on the scale it shows 12 ounces. When the box and the bag are put on the scale together, it shows 31 ounces. What is the actual weight of the box?

Answer

22. How many different 5-digit numbers can you write using each of the digits 0, 1, 2, 3, 4 exactly once?

Answer

23. Find all 2-digit numbers with the following property: the difference of the number and the number with its digits reversed is 36.

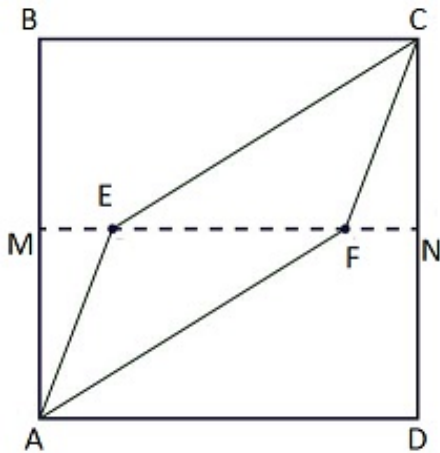
Answer

(Separate your answers by a comma)

24. Dan, Anna, and Todd are walking in a city park. Each time Dan takes 3 steps, Anna takes 5 steps. Each time Anna takes 3 steps, Todd takes 5 steps. If Anna and Todd take 400 steps combined, how many steps does Dan take?

Answer

25. $ABCD$ is a square with side length 18 in. M and N are midpoints of \overline{AB} and \overline{CD} , respectively. Polygonal chains AEC and AFC separate the square into three parts with the same area. What is the length of \overline{EF} ?



Answer