

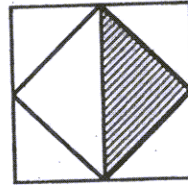
NAME: \_\_\_\_\_

SCHOOL: \_\_\_\_\_

1. Seven Canadian students (each from a different province) are meeting at a National math competition and each one of them gives his provincial flag as a gift to each of the other six students. How many provincial flags have been given altogether?

\_\_\_\_\_ 1

2. The midpoints of the sides of a square with area 136 square units are joined as shown. Find the area of the shaded region.

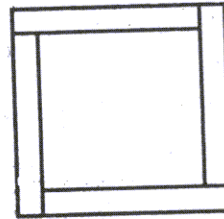


\_\_\_\_\_ 2

3. While producing the answers for 108 math questions on a test, Joshua got more than 5% of them wrong. What is the maximum number of questions for which Joshua could have the right answer?

\_\_\_\_\_ 3

4. Four rectangular strips of wood, each 83 cm long and 8 cm wide, are arranged to form a square as shown. Find the area of the inner square.



\_\_\_\_\_ 4

5.  $N$  is a whole number that satisfies:  $N^2 = 1 + 2 + 3 + 4 + 3 + 2 + 1$ .

Calculate:  $N^3 =$

\_\_\_\_\_ 5

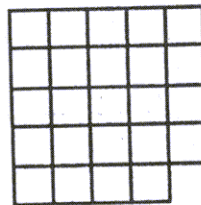
6. Jimmy has enough food on his farm to feed 12 cows or 18 pigs. He is going to feed 12 pigs along with some cows. How many cows can he feed?

\_\_\_\_\_ 6

7.  $J \times K = 12$ ,  $K \times L = 18$ , and  $M \times L = 36$ .  
 Calculate:  $(J \times K \times L \times M) - (J \times K \times L \times K) =$

\_\_\_\_\_ 7

8. Find the total number of squares (of all sizes) in the diagram.



\_\_\_\_\_ 8

9.  $\frac{1}{7}$  of 196 is the same as  $\frac{7}{13}$  of  $N$ . Find the value of  $N$ .

\_\_\_\_\_ 9

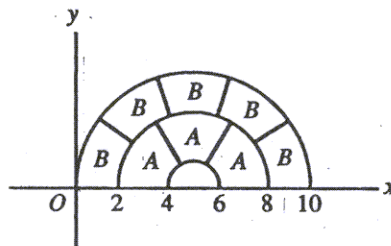
10. 345 people attended the school concert. 98 of them were kids and the rest were adults. Each kid paid an entrance fee of \$1.50 and each adult paid \$3.00. How much money (in \$) did the school collect from the entrance fees? \_\_\_\_\_ 10

11. Find the units digit of the following sum:  $2004^3 + 2005^3 + 2006^3$ . \_\_\_\_\_ 11

12. A car left Kamloops at 9:00 AM and arrived at Vancouver, 340 km away, at 1:15 PM the same day. What was the average speed of the car in km per hour? \_\_\_\_\_ 12

13. On a certain test, seven students scored 70, seven scored 75, seven scored 80, nine scored 85, and ten scored 90. What was the average of all these students? \_\_\_\_\_ 13

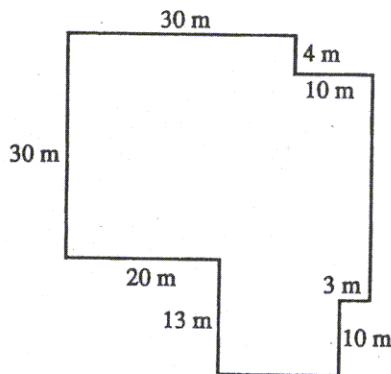
14. In the diagram, the curved lines are semicircles. All areas marked *A* are equal to each other, and all areas marked *B* are equal to each other. Find the value of  $A/B$ .



\_\_\_\_\_ 14

15. When a cup is full of milk, the total weight is 410 grams. When the cup is half full of milk, the total weight is 330 grams. Find the weight of an empty cup (in grams). \_\_\_\_\_ 15

16.  $N = (4 + 8 + 12 + \dots + 100 + 104) - (2 + 4 + 6 + \dots + 50 + 52)$ . Find *N*. (Hint:  $(2 + 4 + 6 + \dots + 48 + 50) = 650$ ). \_\_\_\_\_ 16



17. The diagram shows the floor plan of a warehouse. What is the area of the warehouse? \_\_\_\_\_ 17

18. A drawer in a dark room contains ten white socks and 12 black socks. Two socks are removed at random. What is the probability that both socks are of the same colour? Express your answer as a common fraction. \_\_\_\_\_ 18

19. How many multiples of  $9^2$  are greater than  $9^4$  and smaller than  $9^5$ ? \_\_\_\_\_ 19

20. The product of three consecutive whole numbers is 46620. What is the sum of these three numbers? \_\_\_\_\_ 20

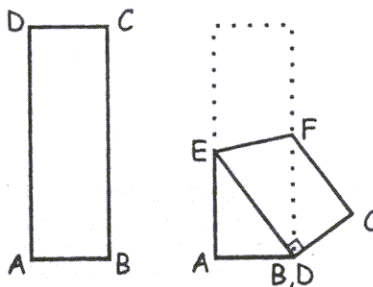
21. The number 2005 is equal to the sum of 401 consecutive integers. What is the largest of these integers? \_\_\_\_\_ 21

22. Standard Canadian coins are: 1c, 5c, 10c, 25c, 1\$, and 2\$. Find the smallest sum of money that you can't pay using ten or fewer standard coins. Express your answer in cents. \_\_\_\_\_ 22

23. What is the smallest whole number greater than 2 that will have a remainder of 2 when divided by any member of the following set  $\{3,4,5,6,8\}$ ? \_\_\_\_\_ 23

24. What is the smallest whole number with exactly eight factors? (Hint: please note that the number 4 has exactly three factors: 1, 2, and 4). \_\_\_\_\_ 24

25. ABCD is a rectangle with  $AB=1$  and  $BC=3$ . Corner D is folded to coincide with corner B to form the folding line EF. What is the length of ED?



Express your answer as a common fraction. (Hint: it may be helpful to draw the line from B to D). \_\_\_\_\_ 25

26. Two different two-digit whole numbers are selected at random. What is the probability that their product is less than 200. Express your answer as a common fraction. (Hints: (1) there are 90 different two-digit numbers, (2) the pair  $\{10,11\}$  produces the smallest product and the pair  $\{11,18\}$  produces the largest product less than 200). \_\_\_\_\_ 26