Abel Mathematics Contest

Grades 4 and 5
May 2012

"It appears to me that if one wishes to make progress in mathematics, one should study the masters and not the pupils."
Niels Henrik Abel
1802-1829

Instructions:

1. Calculators may be used.
2. Select the best answer.
3. Transfer your answers to the Answer Form.
4. Diagrams are not always drawn to scale.
5. The time limit for the Niels Henrik Abel Mathematics Contest is one hour.

BOARD OF EDUCATION
BURNABY
SCHOOL DISTRICT 41

1. 3 x 1000 + 2 x 10 + 5

A. 3025 **B.** 3030 **C.** 3205 **D.** 3250

2. Which number below is closest in size to $\frac{33}{100}$?

A. 0.3 **B.** 0.315 **C.** 0.32999 **D.** 0.34

3. Jessica has 2 pennies, 4 nickels and 5 quarters. Seth has twice as much money as Jessica. How much money does Seth have?

A. $1.49 **B.** $2.72 **C.** $2.94 **D.** $3.47

4. How many edges are on a cube?

A. 6 **B.** 8 **C.** 10 **D.** 12

5. Today's contest is on a Wednesday. One day after the contest is Thursday. Two days after the contest is Friday. Which day of the week will it be 81 days after the contest?

A. Saturday **B.** Sunday **C.** Monday **D.** Tuesday

6. Which of the following is a prime number and a factor of 24?

A. 3 **B.** 4 **C.** 6 **D.** 8

7. A rectangle has a perimeter of 16 cm. If its length is increased by 0.5 cm, and its width is increased by 1.5 cm, what is the new perimeter?

A. 12 cm **B.** 18 cm **C.** 20 cm **D.** 36 cm

8. If 3 pebbles are worth 12 sticks, then $\underline{?}$ pebbles are worth 60 sticks.

A. 5 **B.** 15 **C.** 20 **D.** 240

9. Which quadrilateral has only one pair of parallel sides?

A. trapezoid **B.** rectangle **C.** rhombus **D.** square

10. The teacher is 15 years younger than my father. I am 18 and my father is three times older than me. How old is the teacher?

A. 36 **B.** 39 **C.** 41 **D.** 53

11. Determine the missing number: 12 x 10 x 3 = 2 x 9 x ____

A. 3 **B.** 5 **C.** 10 **D.** 20

12. If a human heart beats approximately 65 times per minute, how many hours will it take to beat 2925 times?

A. 0.25 hours **B.** 0.45 hours **C.** 0.65 hours **D.** 0.75 hours

13. Which of the following could be a referent for one square metre (1 m^2) ?

A. a soccer ball's diameter **B.** a school's height

C. the surface of a painting **D.** the amount of milk in a container

14. Gurpreet makes a list of all whole numbers between 5 and 29 that are divisible by <u>both</u> 2 and 3. What is the sum of the numbers in Gurpreet's list?

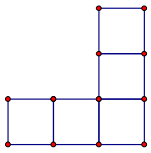
A. 37 **B.** 60 **C.** 85 **D.** 132

15. What is the ones digit in the product 111 x 112 x 113 x 114 x 115 x 116 x 117 x 118 x 119 ?

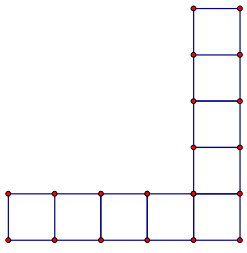
A. 0 **B.** 2 **C.** 8 **D.** 9

16. A square with a perimeter of 8 cm is translated to create shapes in the pattern below. The second shape has a perimeter of 24 cm. If the pattern continues, what would be the perimeter of the 4th shape?

1st shape
Perimeter = 8cm



2nd shape
Perimeter = 24 cm



3rd shape
Perimeter not given

?

4th shape (not shown)
Perimeter = ?

A. 40 cm **B.** 48 cm **C.** 56 cm **D.** 64 cm

17. Sally leaves home at 7:47 am and returns later that day at 4:12 pm. How many minutes was Sally away from home?

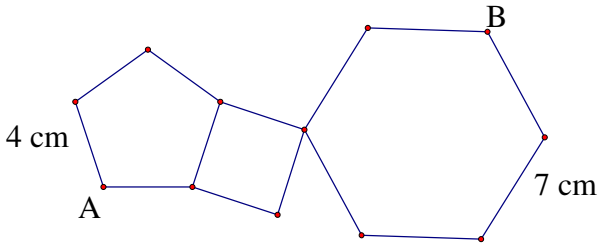
A. 335 **B.** 455 **C.** 505 **D.** 565

18. A six-sided dice has the numbers 1, 2, 3, 4, 5 and 6. Which is the most likely?

I	Rolling the dice and getting a 5
II	Rolling the dice and getting an even number
III	Rolling the dice and getting a number less than 3
IV	Rolling the dice and getting a number divisible by 3

A. I **B.** II **C.** III **D.** IV

19. Three regular polygons are connected in the diagram below. If you start at point A and move along the edges, what is the shortest distance to point B?



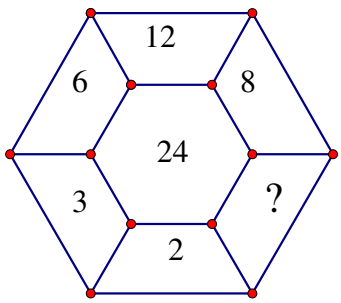
A. 20 cm **B.** 26 cm **C.** 30 cm **D.** 35 cm

20. Which 3 lengths listed below <u>cannot</u> form a triangle?

A. 3 , 4 , 5 **B.** 9, 10, 11

C. 2 , 5 , 11 **D.** 7, 10, 15

21. Determine the missing number.



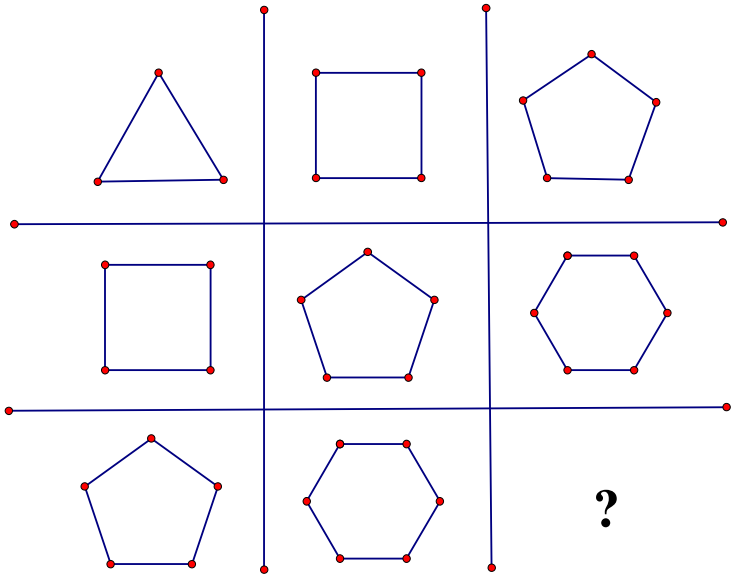
A. 16 **B.** 10 **C.** 5 **D.** 4

22. Determine the result in the pattern below.

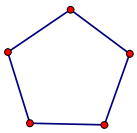
$2012 - 2010 + 2010 - 2008 + 2008 - 2006 + 2006 - 2004 + \ldots + 1514 - 1512$

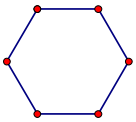
A. 500 **B.** 502 **C.** 1000 **D.** 1004

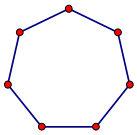
23. Determine the missing shape in the pattern below.



A. 

B. 

C. 

D. 

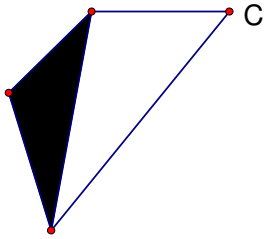
24. Some Morts are Nucks and all Nucks are Ricks. Therefore, we know the following:

A. Some Morts are Ricks **B.** No Morts are Ricks

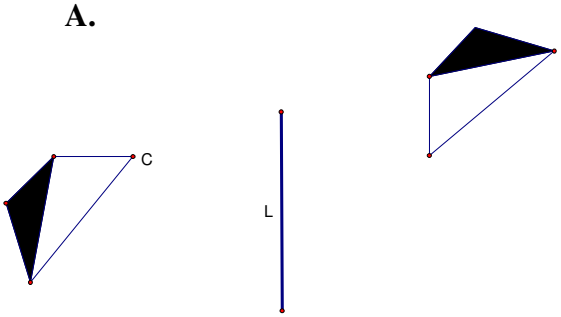
C. All Morts are Ricks **D.** All Ricks are Nucks

25. The figure on the right is rotated 90^0 anti-clockwise about point C and then reflected about line L.

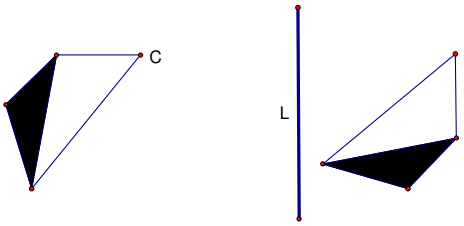
What is the resulting image?



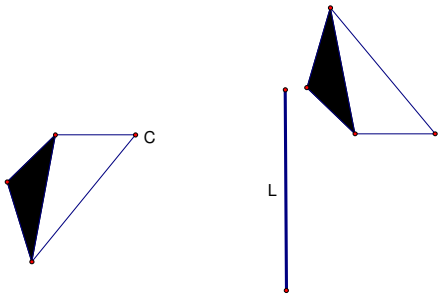
A.



B.



C.



D.