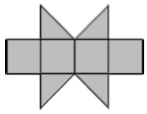
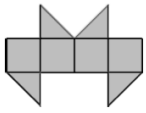
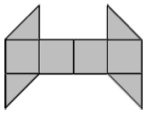
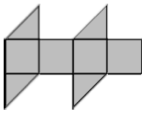
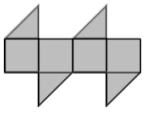
1.

One of the following nets cannot be folded to form a cube. Which one?

(A)  (B)  (C)  (D)  (E) 

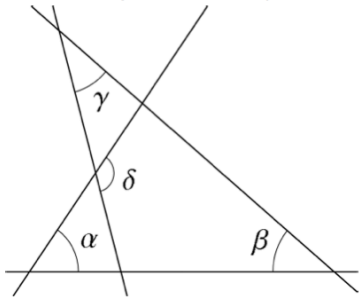
2.

The perimeter of a trapezoid is 5 and the lengths of its sides are integers. What are the smallest two angles of the trapezoid?

(A) 30° and 30° (B) 60° and 60° (C) 45° and 45° (D) 30° and 60° (E) 45° and 90°

3.

In the diagram, $\alpha = 55°$, $\beta = 40°$ and $\gamma = 35°$. What is the value of δ?



(A) 100° (B) 105° (C) 120° (D) 125° (E) 130°

4.

On the surface of a globe, the geography teacher drew 10 parallels and 10 meridians. Into how many areas has the surface of the globe thus been divided?

(A) 81 (B) 90 (C) 100 (D) 110 (E) 121

5.

The units digit of a three-digit number, ABC, is moved to the left of the remaining two digits to make a new three-digit number, CAB. If CAB − ABC = 162, what is the sum of the least and greatest possible values of ABC?

6.

The line with equation $ax + by = c$, where a, b and c are positive, forms a right triangle with legs on the x- and y-axes. What is the area of the triangle? Express your answer as a common fraction in terms of a, b and c.

7.

Each digit 0 through 9 is used exactly once to create two five-digit numbers. What is the sum of the digits of the greatest product of two such numbers?

8.

Each year for the first five years of life, a baby elephant's weight increases by 10%. By what percent of its birth weight does an elephant's weight increase during these five years? Express your answer to the nearest whole number.

9.

Show the following are true:

$1/n(n+1) = 1/n - 1/(n+1)$

$1/(n(n+k) = 1/k\,(1/n - 1/(n+k))$

10.

Find the sum:

$1/(1x3) + 1/(3x5) + 1/(5x7) + \ldots. + 1/(11x13) =$