



Matematikksenteret

Nasjonalt senter for matematikk i opplæringen

2026

KENGURUKONKURRANSEN

Problems in English

Cadet

(9.–10. trinn)

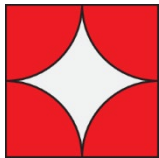


 NTNU

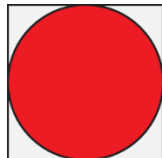


3 points

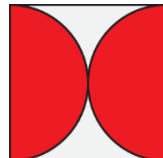
1. In which diagram does the shaded part have the largest area?



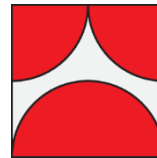
(A)



(B)



(C)



(D)

All shaded parts
have the same
area.

(E)

2. The year 2026 is called “all-even” because 2026 consists of only even digits.

How many years will pass before the year is first an “all-even” year
where its digits are all different?

(A) 2

(B) 20

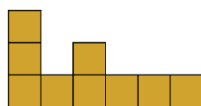
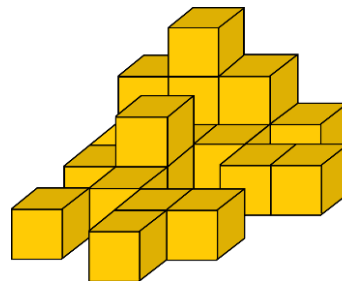
(C) 22

(D) 38

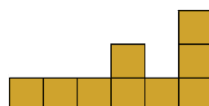
(E) 42

3. Karla the kangaroo is looking at the
pile of twenty boxes, as shown.

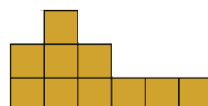
What does she see?



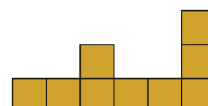
(A)



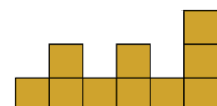
(B)



(C)



(D)



(E)





4. There are three different routes from city A to city B.
There are five different routes from city B to city C.



Ahmad travels from city A to city C, via city B.
He wishes to return to city A via city B by a route
that is not completely the same as the route he used from A to C.



How many possible routes can he choose for his return trip?

- (A) 5 (B) 6 (C) 10 (D) 12 (E) 14

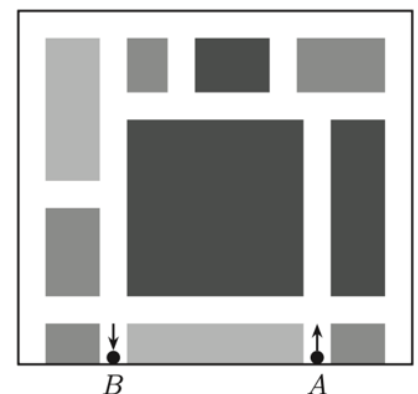
5. Martin held a digital clock in front of a mirror and noticed that the numbers on the reflection of clock in the mirror showed a different time of day.

Which of the following times could Martin's clock be showing?



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

6. A map of part of Kangarooville is shown in the diagram, where the white areas represent roads. The Kangarooville rules specify that at every junction, vehicles can only go straight on or turn right. Anna wants to travel from point A to point B along the roads shown.



What is the smallest number of times she must turn right?

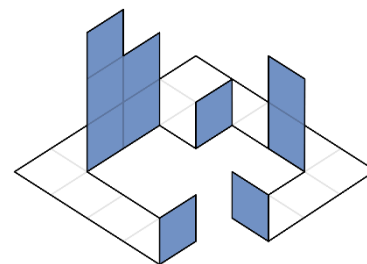
- (A) 4 (B) 5 (C) 6 (D) 7 (E) 9



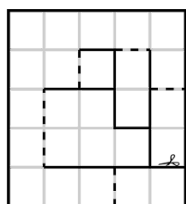
7. Which of the following numbers is not the sum of two or more consecutive positive whole numbers?

- (A) 5 (B) 6 (C) 7 (D) 8 (E) 9

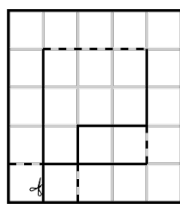
8. Ada has used a paper template to make the figure shown. The dashed lines on the template show where she would fold and the solid lines show where she would cut.



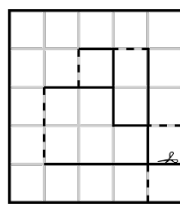
Which template did Ada use?



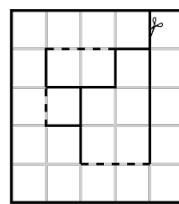
(A)



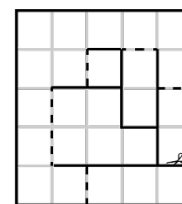
(B)



(C)



(D)

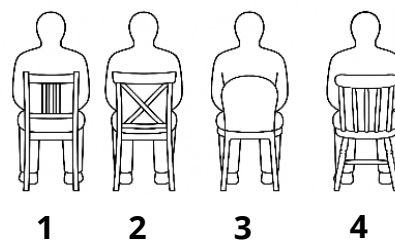


(E)

4 points

9. Four seats in a row, numbered 1 – 4 from left to right, are occupied by Andy, Bob, Carsten, and David, but not in that order, with the following conditions:

- Andy is not in seat 1.
- Bob is directly to the right of Andy.
- David is not at either end.
- Carsten is not in seat 3.



In what order, from left to right, do they sit?

- (A) Bob, David, Andy, Carsten (B) Carsten, Andy, David, Bob (C) Carsten, David, Andy, Bob (D) Carsten, David, Bob, Andy (E) David, Carsten, Bob, Andy



10. Jo wants to place the numbers 2, 0, 2 and 6 in the boxes shown with one number in each box and to calculate the result.

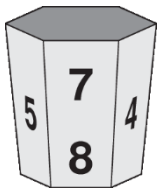
$$\begin{array}{r} \square + \square \\ \hline \square - \square \end{array}$$

What is the smallest positive result she can get?

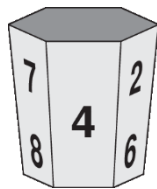
- (A) $\frac{1}{6}$ (B) $\frac{1}{4}$ (C) $\frac{1}{3}$ (D) $\frac{1}{2}$ (E) $\frac{2}{3}$

11. My mug has the digits 1 to 9 on it.
It can be seen in four of the following pictures.

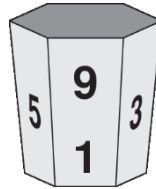
Which picture shows a different mug?



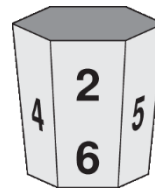
(A)



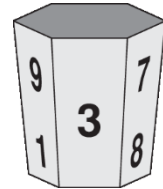
(B)



(C)



(D)



(E)

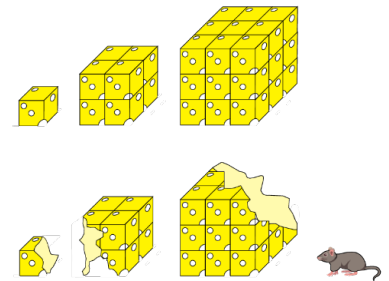
12. Mariam has 13 dollars less than the total amount Ria and Emma have.
Ria has 5 dollars more than the total amount Emma and Mariam have.

How many dollars does Emma have?

- (A) 18 (B) 17 (C) 8 (D) 7 (E) 4

13. Mirko the mouse has three different sized blocks of cheese, each made up of identically sized cubes, as shown in the first diagram.

He ate 40 % of the first block of cheese, 40 % of the second, and 20 % of the third.



What percentage of the total amount of cheese did Mirko eat?

- (A) 18 % (B) 20 % (C) 23 % (D) 24 % (E) 25%

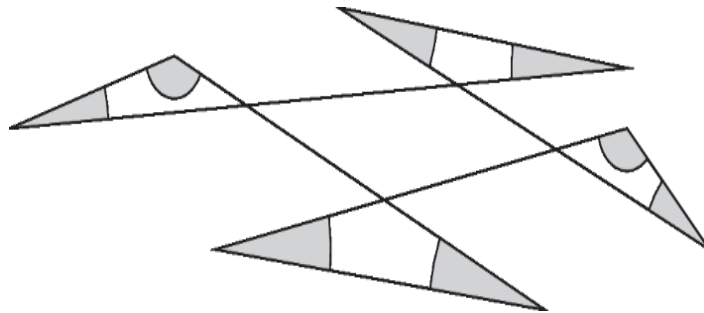


14. Five squirrels and a fox live in a magic forest. Each squirrel eats 6 cherries a day. Each day the fox eats 5 more cherries than the mean number of cherries eaten by all six animals.

How many cherries does the fox eat each day?

- (A) 10 (B) 11 (C) 12 (D) 13 (E) 14

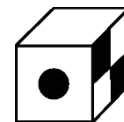
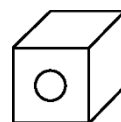
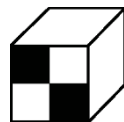
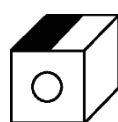
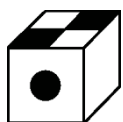
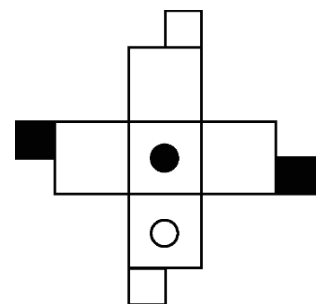
15. What is the sum of all the shaded angles?



- (A) 180° (B) 240° (C) 270° (D) 360° (E) 450°

16. The figure on the right shows a template from which a cube can be made.

Which of the following shows the completed cube?



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



5 points

17. In the given addition problem, each letter used represents a single digit, and different letters represent different digits.

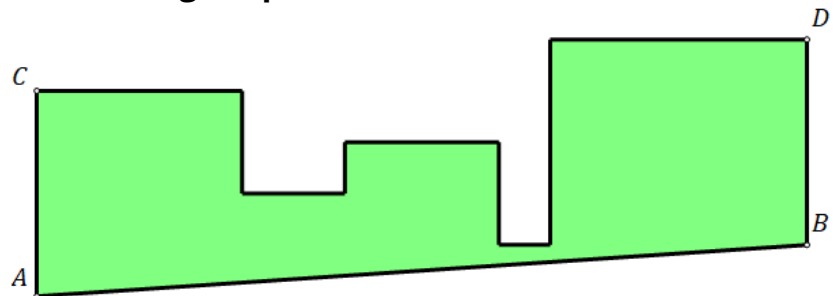
$$\begin{array}{r} ABC \\ + ACB \\ \hline C4A \end{array}$$

What is the value of $A + B + C$?

- (A) 16 (B) 17 (C) 18 (D) 19 (E) 20

18. A shape is made from five touching squares with areas of 1 cm^2 , 4 cm^2 , 9 cm^2 , 16 cm^2 and 25 cm^2 in some order, whose bases all lie on some common line. The point A is a vertex of the left-hand square. Valeriu cuts the shape along the line AB, which is parallel to CD.

What is the area of the remaining shape, as shown?



- (A) $44,5 \text{ cm}^2$ (B) $45,5 \text{ cm}^2$ (C) $46,5 \text{ cm}^2$ (D) $47,5 \text{ cm}^2$ (E) $48,5 \text{ cm}^2$

19. I have two old watches, my grandfather's watch and my father's watch. My grandfather's watch loses 5 minutes every hour, and my father's watch gains 5 minutes every hour. Yesterday I set them to the correct time at 09:00 PM. When I woke up the next morning, my grandfather's watch showed 08:00 AM.

What time did my father's watch show at that moment?

- (A) 09:00 AM (B) 09:30 AM (C) 10:00 AM (D) 10:30 AM (E) 11:00 AM



20. Anna, Bea, and Cecilie went to a stationery store to buy pens and rulers. Each of them bought exactly 10 items in total. Anna bought twice as many pens as Cecilie bought rulers. Bea bought twice as many pens as Anna bought rulers. Altogether, the girls bought an even number of rulers.

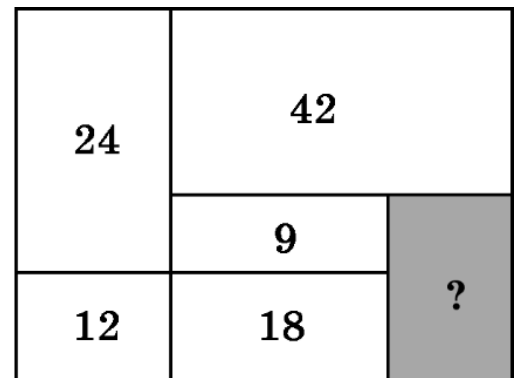
How many pens did Bea buy?

- (A) 2 (B) 4 (C) 6 (D) 7 (E) 8

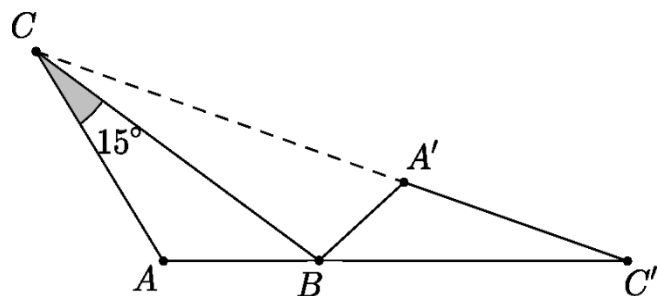
21. The rectangle shown is divided into six rectangular parts. The areas of five of the parts are given.

What is the area of the sixth part?

- (A) 14 (B) 15 (C) 16 (D) 18 (E) 20



22. Triangle $A'BC'$ is obtained by rotating triangle ABC around vertex B . The points C , A' , and C' lie on a straight line as do the points A , B and C' . The size of $\angle BCA$ is 15° .



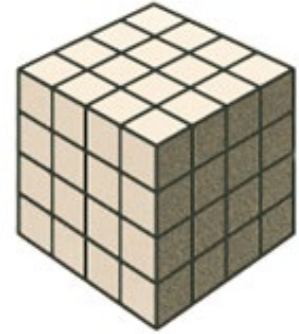
What is the size of $\angle BAC$?

- (A) 105° (B) 115° (C) 120° (D) 135° (E) 140°



23. A large cube with a side-length of 4, consists of small cubes with a side-length of 1.

What is the smallest number of small cubes that need to be removed from the large cube to increase the surface area of the shape by 50%?



- (A) 6 (B) 8 (C) 10 (D) 12 (E) 18
-

24. Diana wants to arrange the five numbers 1, 2, 3, 4, and 5 into a row such that the last number is odd, and the sum of any three consecutive numbers is divisible by the first number of the three.

How many such arrangements could she make?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6