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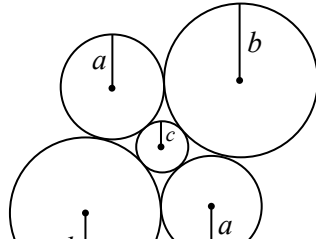
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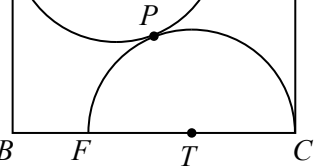
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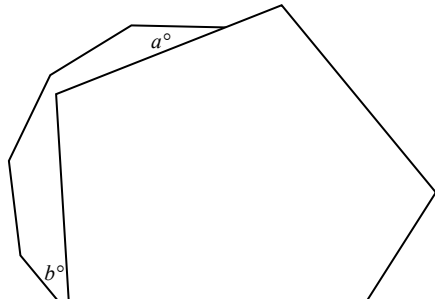
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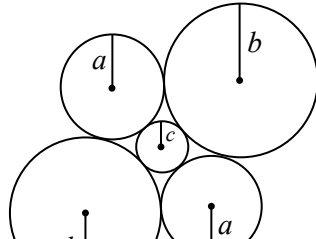
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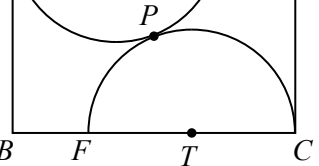
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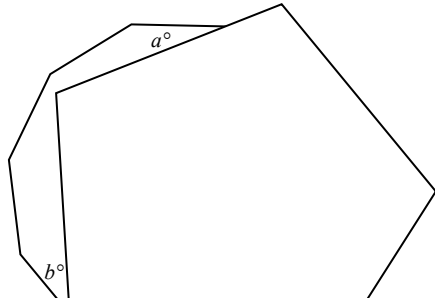
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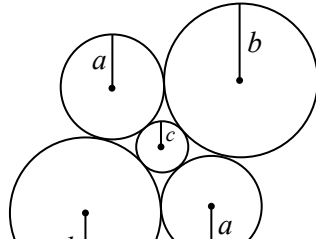
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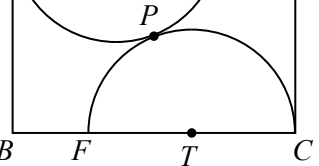
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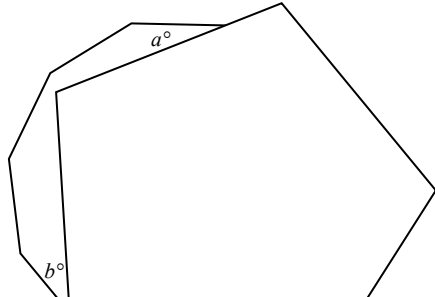
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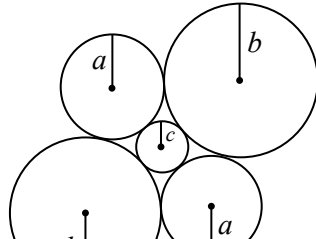
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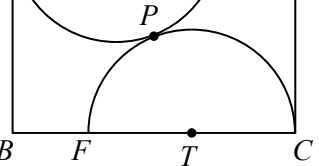
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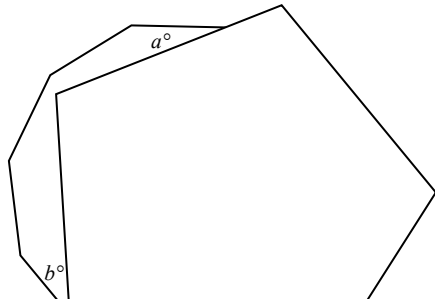
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Euclid Contest

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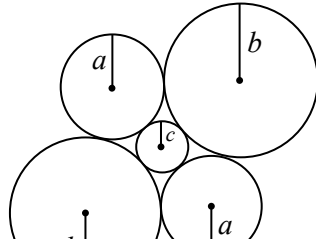
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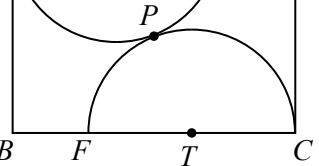
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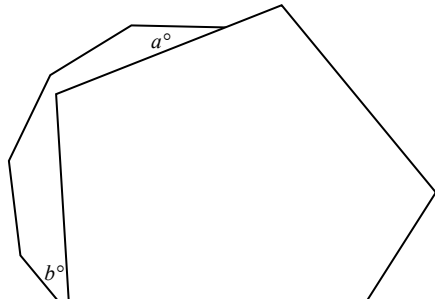
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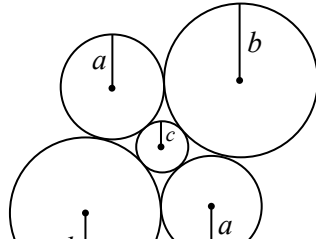
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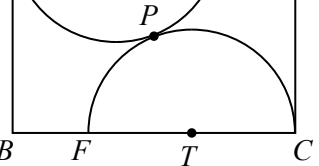
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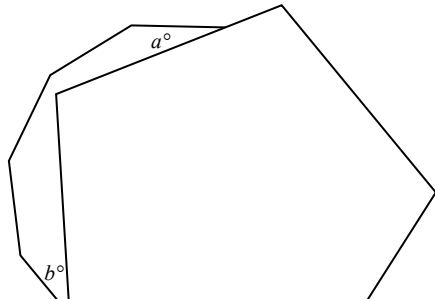
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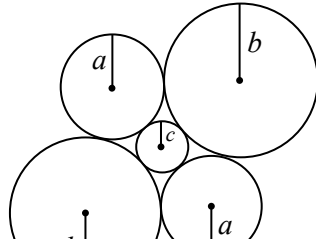
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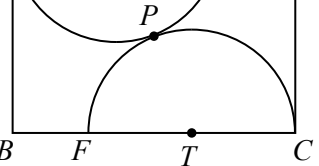
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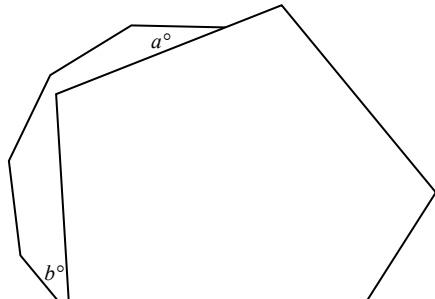
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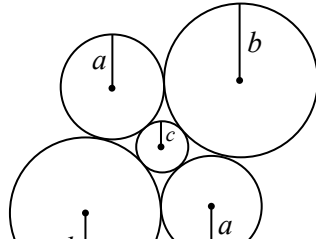
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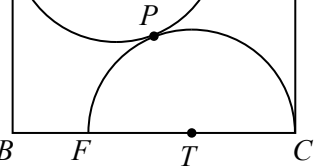
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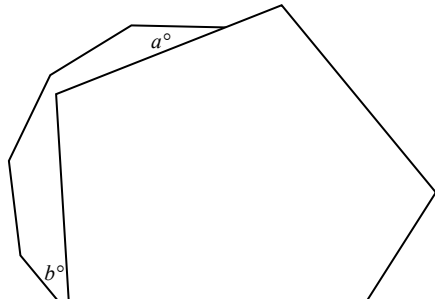
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(b) A bakery sells small and large cookies. Before a price increase, the price of each small cookie is \$1.50 and the price of each large cookie is \$2.00. The price of each small cookie is increased by 10% and the price of each large cookie is increased by 5%. What is the percentage increase in the total cost of a purchase of 2 small cookies and 1 large cookie?



(c) Qing is twice as old as Rayna. Qing is 4 years younger than Paolo. The average age of Paolo, Qing and Rayna is 13. Determine their ages.



(b) For some real numbers m and n , the list $3n^2, m^2, 2(n+1)^2$ consists of three consecutive integers written in increasing order. Determine all possible values of m .

5.





(a) Chinara starts with the point $(3, 5)$, and applies the following three-step process, which we call \mathcal{P} :

Step 1: Reflect the point in the x -axis.

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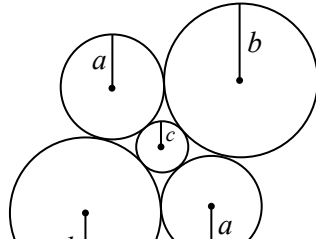
7.  (a) A bag contains 3 green balls, 4 red balls, and no other balls. Victor removes balls randomly from the bag, one at a time, and places them on a table. Each ball in the bag is equally likely to be chosen each time that he removes a ball. He stops removing balls when there are two balls of the same colour on the table. What is the probability that, when he stops, there is at least 1 red ball and at least 1 green ball on the table?

-  (b) Suppose that $f(a) = 2a^2 - 3a + 1$ for all real numbers a and $g(b) = \log_{\frac{1}{2}} b$ for all

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A Note about Bubbling

Please make sure that you have correctly coded your name, date of birth and grade on the Student Information Form, and that you have answered the question about eligibility.

1.  (a) If $x = 11$, what is the value of $\frac{3x + 6}{x + 2}$?
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Step 3: Add y and 1. Let y equal the result. The value of x does not change.

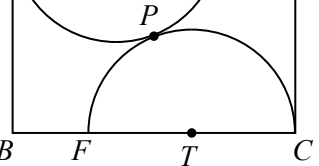
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	x	y
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touch at a single point T , as shown. What is the value of r ?



- (b) In the diagram, $\triangle ABE$ is right-angled at A , $\triangle BCD$ is right-angled at C , $\angle ABC = 135^\circ$, and $AB = AE = 7\sqrt{2}$. If $DC = 4x$, $DB = 8x$ and $DE = 8x - 6$ for some real





B and C is 2 km east of B . A large explosion occurs at a point P not on this line. Each of the three microphones receives the sound. The sound travels at $\frac{1}{3}$ km/s. Microphone B receives the sound first, microphone A receives the sound $\frac{1}{2}$ s later, and microphone C receives it 1 s after microphone A . Determine the distance from microphone B to the explosion at P .



For students...


Eucha Contest


Wednesday, April 3, 2019

(in North America and South America)

Thursday, April 4, 2019

(outside of North America and South America)

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(b) If $16^{\frac{15}{x}} = 32^{\frac{4}{3}}$, what is the value of x ?



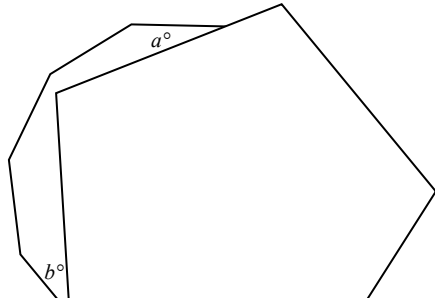
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(a) A regular pentagon covers part of another regular polygon, as shown. This regular polygon has n sides, five of which are completely or partially visible. In the diagram, the sum of the measures of the angles marked a° and b° is 88° . Determine the value of n .

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For example, the value of $f(1, 2)$ is 3.

2019

Euclid

Contest

(English)



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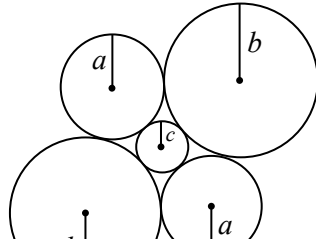
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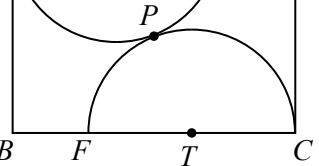
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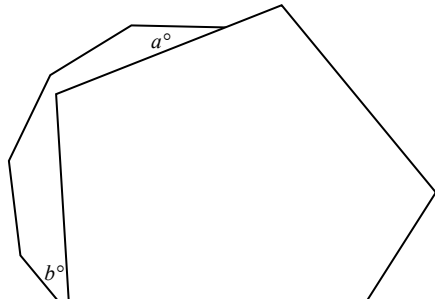
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