

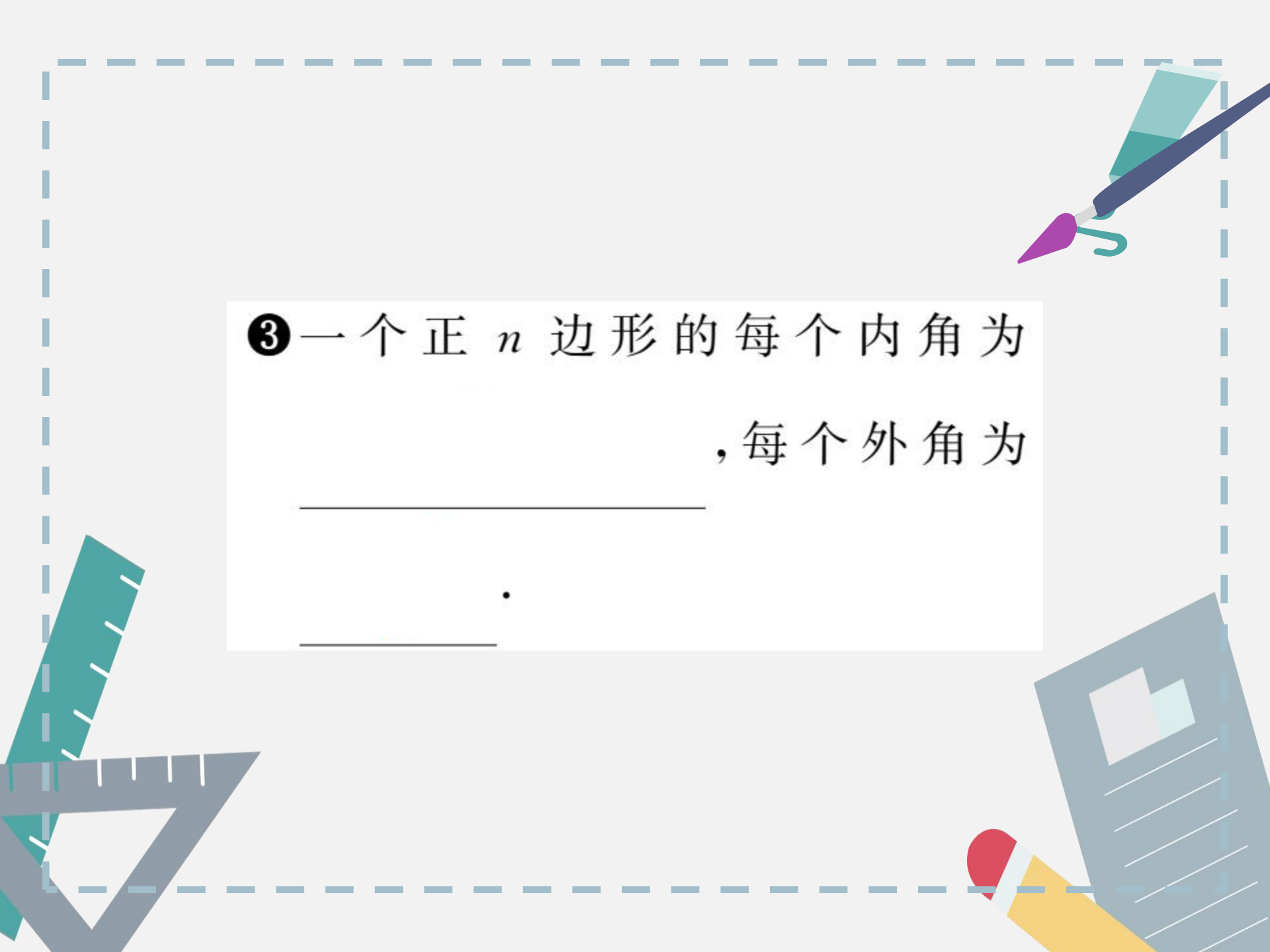


## 11.3.2 多边形的内角和

# A 自主课堂

## 【要点导航】

- ①  $n$  边形的内角和等于\_\_\_\_\_.
- ② 在多边形的每个顶点处分别取多边形的\_\_\_\_\_外角,它们的和叫做多边形的外角和;多边形的外角和等于\_\_\_\_\_.



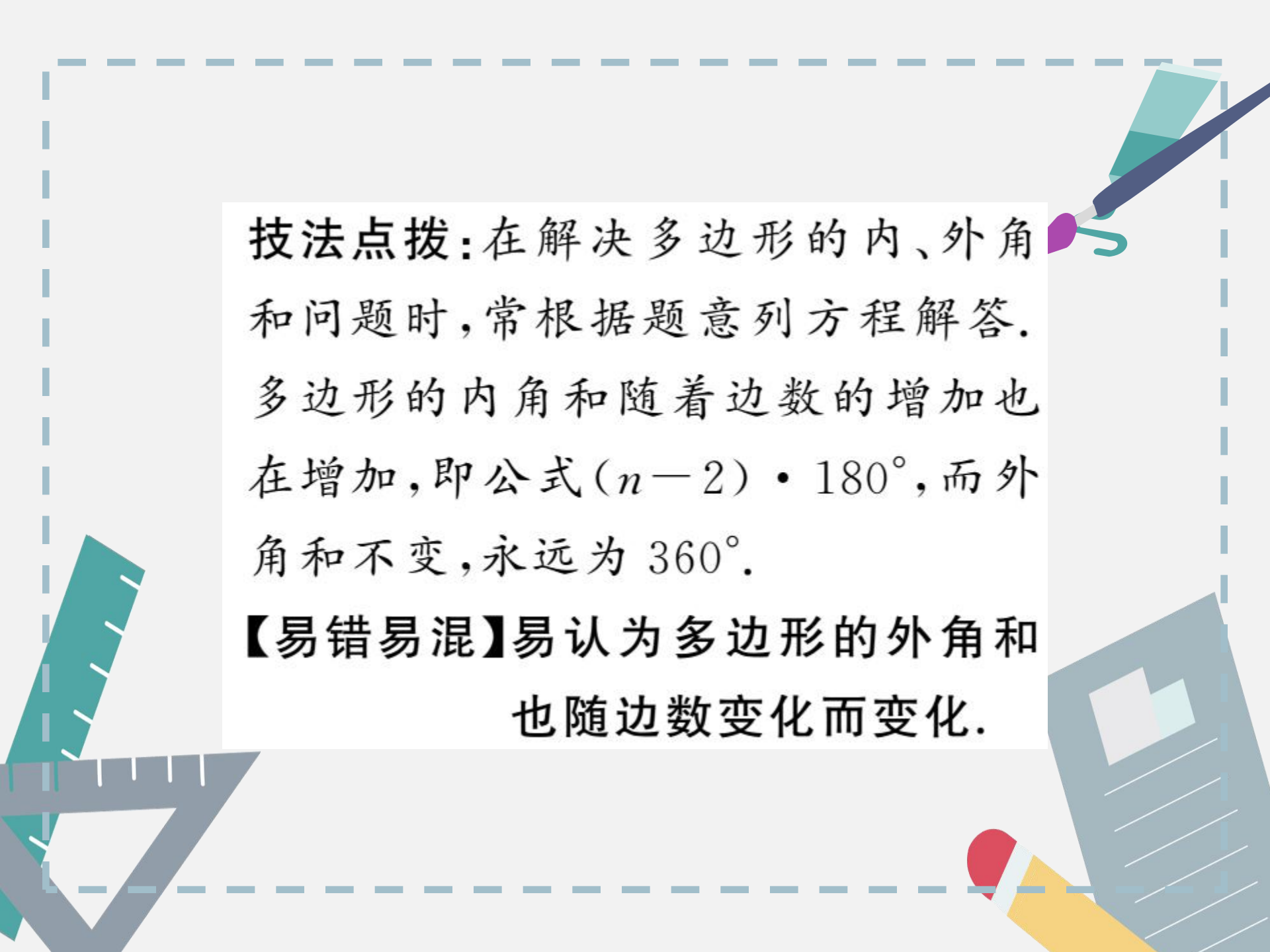
③ 一个正  $n$  边形的每个内角为  
\_\_\_\_\_ , 每个外角为  
\_\_\_\_\_ .

## 【经典导学】

**【例 1】** 一个多边形的每一个外角都相等,且都为  $36^\circ$ ,求多边形的边数及内角和.

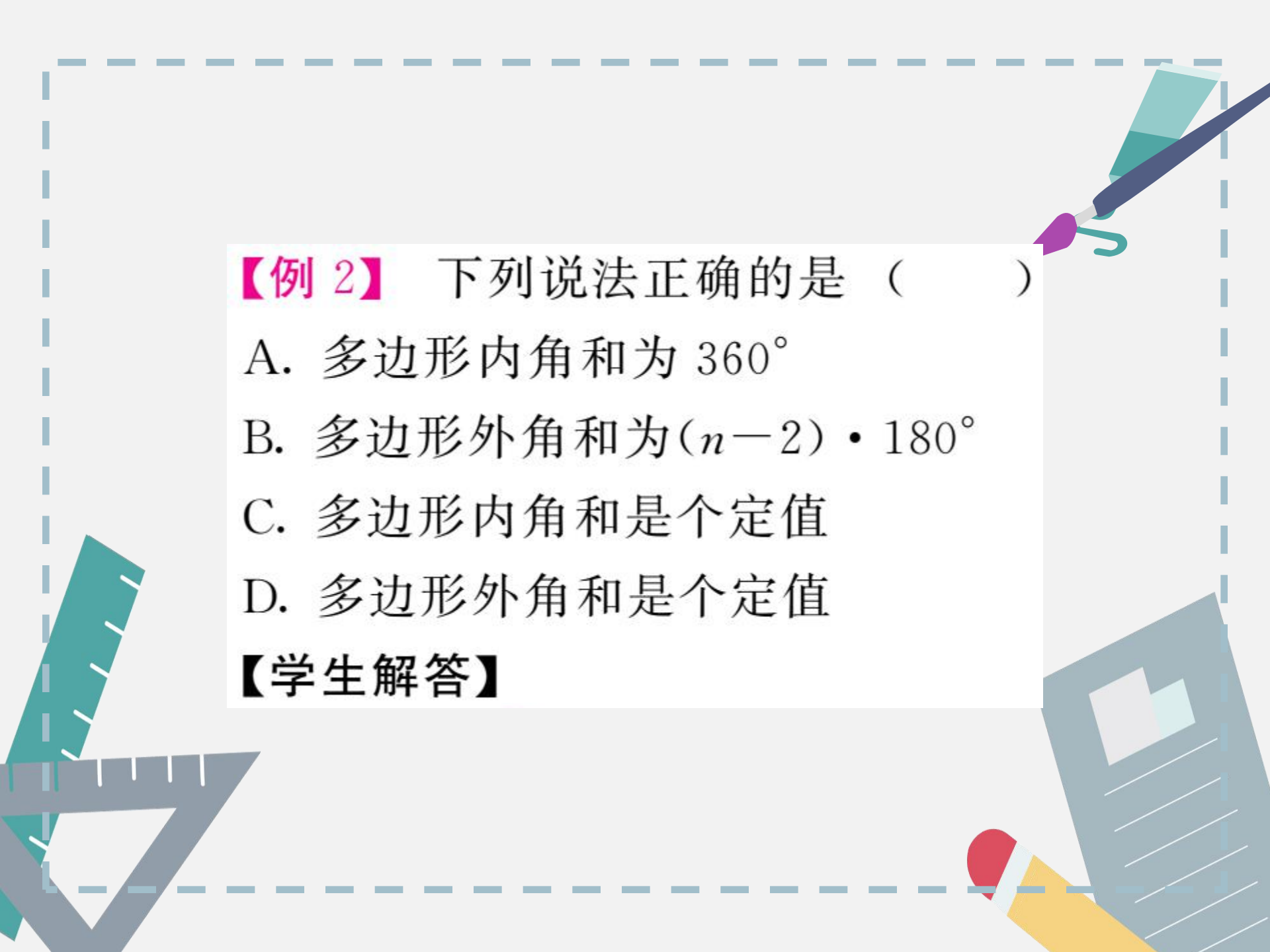
**破解思路:** 此题每一个外角都相等,说明是正多边形,也可由外角和求边数.

## 【学生解答】



**技法点拨:**在解决多边形的内、外角和问题时,常根据题意列方程解答. 多边形的内角和随着边数的增加也在增加,即公式 $(n-2) \cdot 180^\circ$ ,而外角和不变,永远为 $360^\circ$ .

**【易错易混】**易认为多边形的外角和也随边数变化而变化.



**【例 2】** 下列说法正确的是 ( )

- A. 多边形内角和为  $360^\circ$
- B. 多边形外角和为  $(n-2) \cdot 180^\circ$
- C. 多边形内角和是个定值
- D. 多边形外角和是个定值

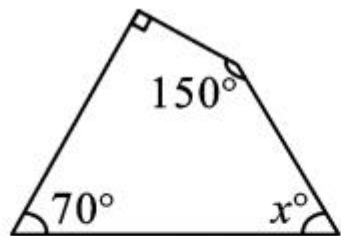
**【学生解答】**

# B 固本夯基 —— 逐点练

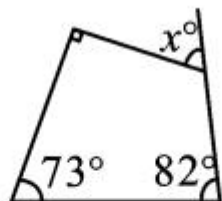
## 知识点 1 多边形的内角和

1. 六边形的内角和是 ( )  
A.  $540^\circ$                       B.  $720^\circ$                       C.  $900^\circ$                       D.  $1080^\circ$
2. 一个多边形的内角和为  $1800^\circ$ , 则这个多边形是 ( )  
A. 九边形                      B. 十边形                      C. 十一边形                      D. 十二边形
3. 通过画出多边形的对角线, 可以把多边形内角和问题转化为三角形内角和问题. 如果从某个多边形的一个顶点出发的对角线共有 2 条, 那么该多边形的内角和是 \_\_\_\_\_ 度.

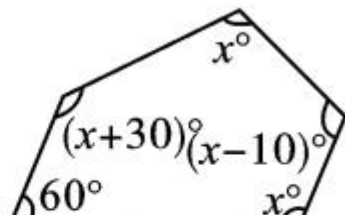
4. (教材 P<sub>24</sub> T<sub>2</sub> 变式) 求如图所示的图形中  $x$  的值:



(1)

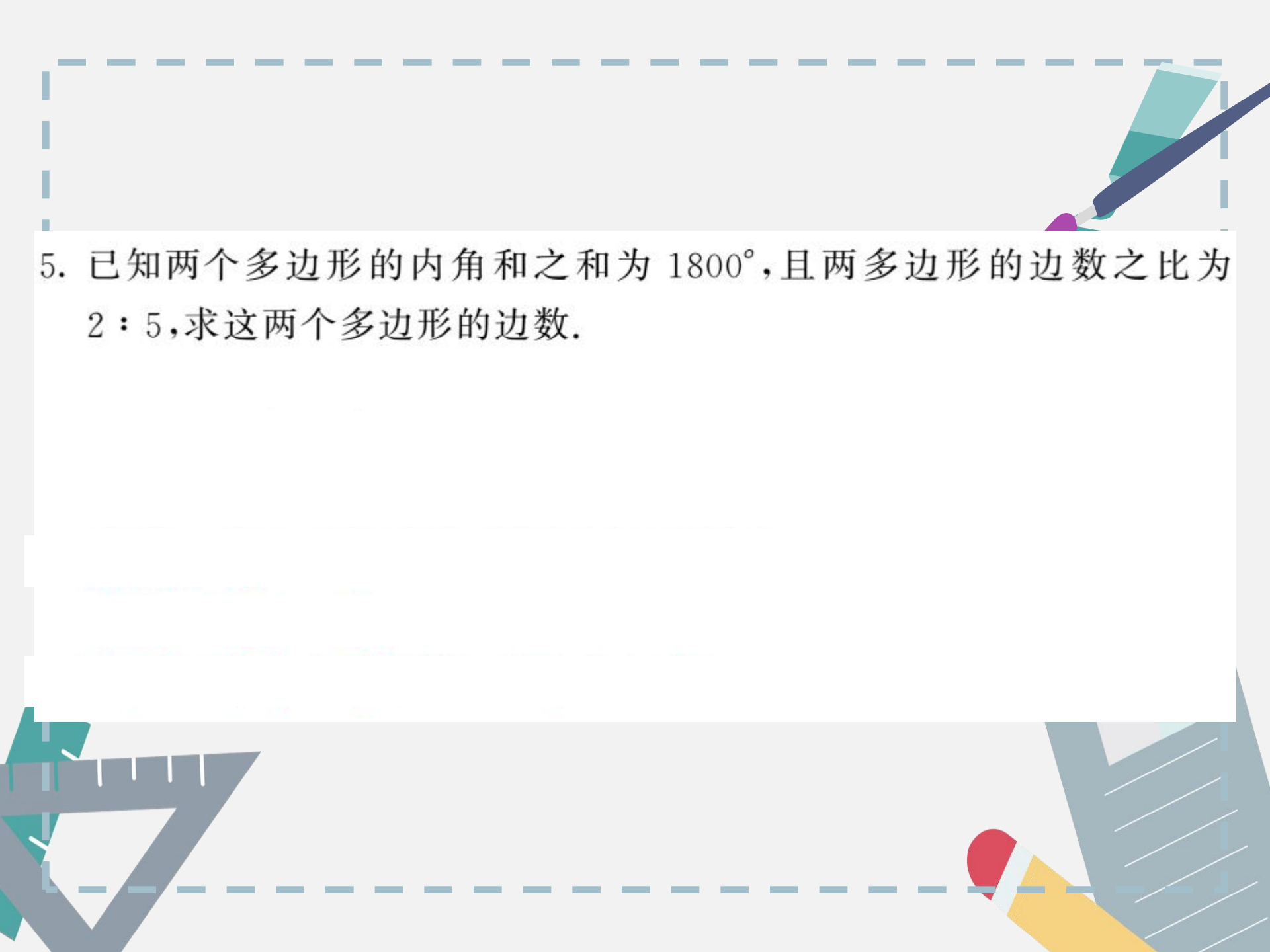


(2)



(3)

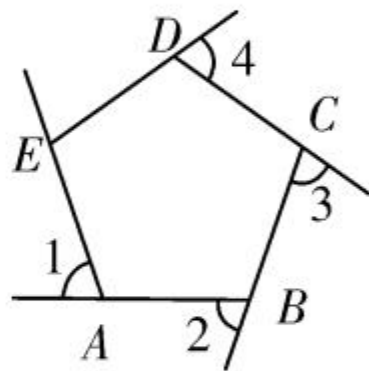




5. 已知两个多边形的内角和之和为  $1800^\circ$ , 且两多边形的边数之比为  $2:5$ , 求这两个多边形的边数.

## 知识点 2 多边形的外角和

6. (泉州九中月考卷)若正多边形的一个外角是  $60^\circ$ , 则该正多边形的内角和为 ( )
- A.  $360^\circ$                       B.  $540^\circ$                       C.  $720^\circ$                       D.  $900^\circ$
7. 如图,  $\angle 1, \angle 2, \angle 3, \angle 4$  是五边形  $ABCDE$  的外角, 且  $\angle 1 = \angle 2 = \angle 3 = \angle 4 = 70^\circ$ , 则  $\angle AED$  的度数是 \_\_\_\_\_.
8. (教材 P<sub>25</sub> T<sub>6</sub> 变式) 已知一个多边形的内角和比它的外角和的 3 倍少  $180^\circ$ , 求这个多边形的边数.



第 7 题图



整

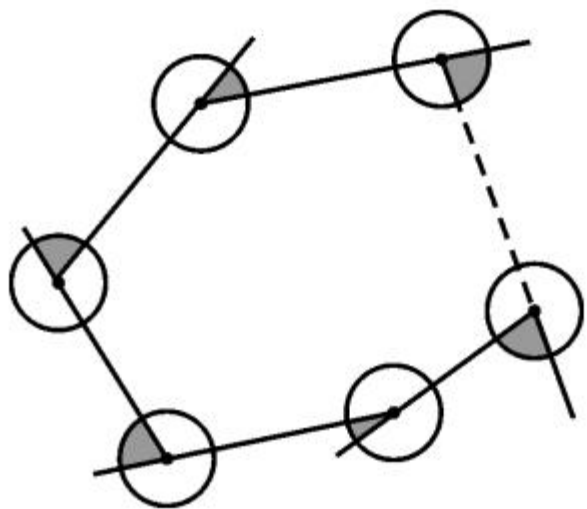
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运用

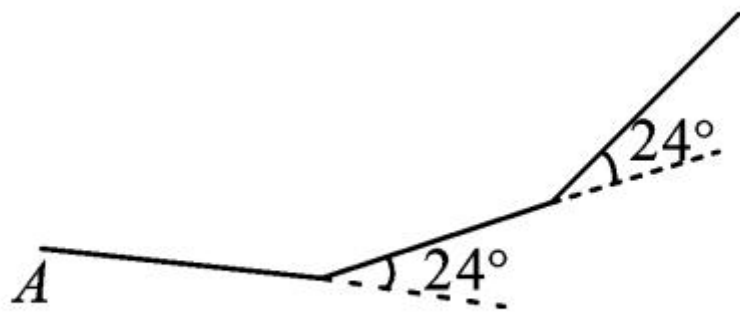
——提能力

9. 一个多边形的每个内角都等于  $150^\circ$ , 则从此多边形的一个顶点出发可作的对角线共有 ( )
- A. 8 条      B. 9 条      C. 10 条      D. 11 条
10. 一个多边形剪去一个内角后, 得到新多边形的内角和为  $2520^\circ$ , 则原多边形的边数为 ( )
- A. 15 或 16      B. 16 或 17  
C. 14 或 15 或 16      D. 15 或 16 或 17

11. 如图所示,分别以  $n$  边形的顶点为圆心,以单位 1 为半径画圆,则图中阴影部分的面积之和为 \_\_\_\_\_ 个平方单位.



12. (教材 P<sub>22</sub> 例 2 变式) 如图, 小华从点 A 出发, 沿直线前进 12m 后向左转  $24^\circ$ , 再沿直线前进 12m, 又向左转  $24^\circ$ , …… , 照这样走下去, 他第一次回到出发地点 A 时, 一共走的路程是 \_\_\_\_\_ m.



第 12 题图

13. 一个多边形中,每个内角都相等,并且每个外角都等于它的相邻内角的 $\frac{1}{4}$ ,求这个多边形的边数及内角和.

## 14. 看图回答问题：

这个凸多边形的内角和是 $2020^\circ$ 。



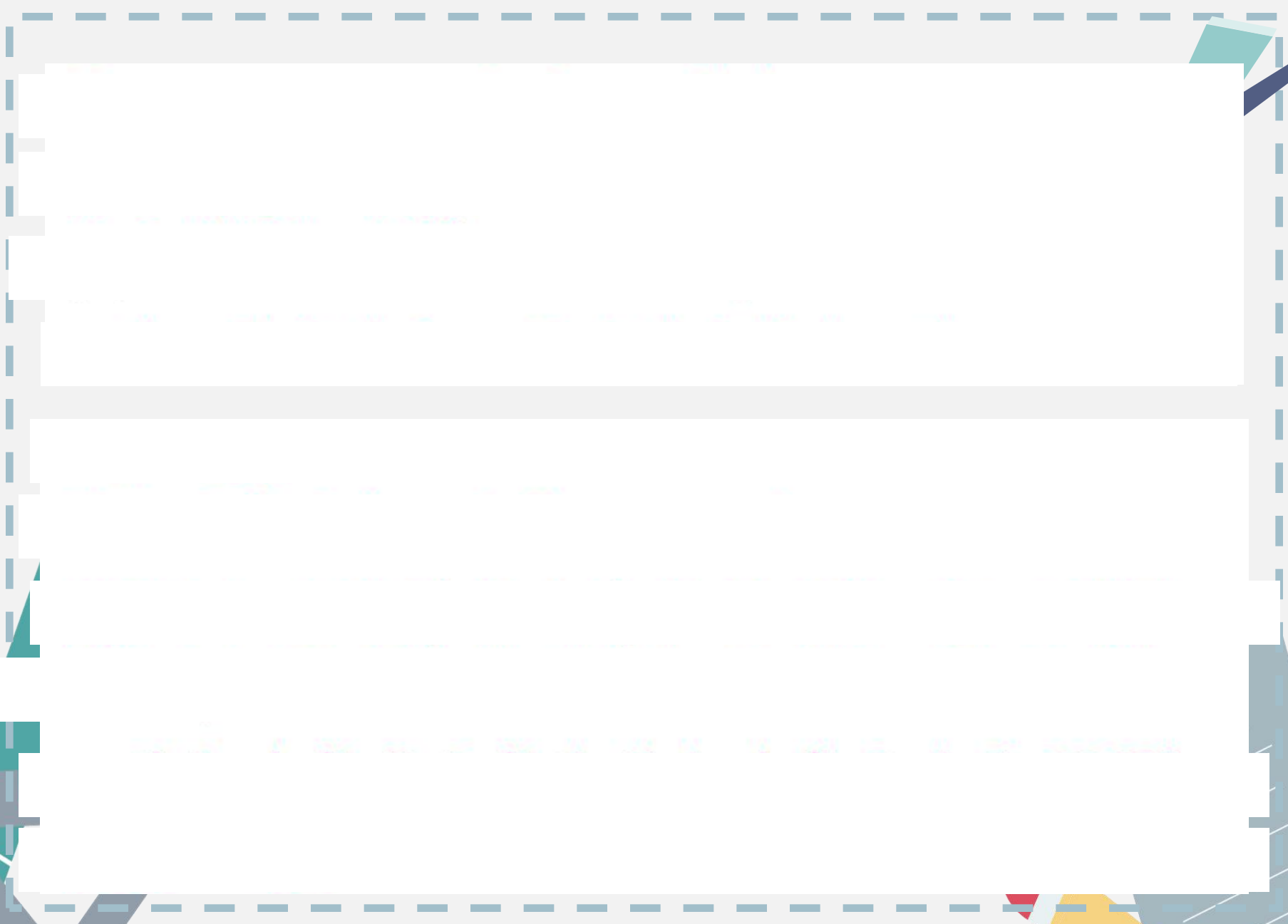
小华

什么？不可能吧！你看，你把一个外角当内角加在了一起！



小明

- (1) 内角和为  $2020^\circ$ ，小明为什么说不可可能？
- (2) 小华求的是几边形的内角和？
- (3) 错把外角当内角的那个外角的度数你能求出来吗？是多少度呢？



1. The first part of the text discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the text focuses on the role of internal controls in preventing fraud and ensuring the integrity of the financial statements. It highlights the importance of a strong internal control system.

3. The third part of the text discusses the impact of external factors, such as market conditions and regulatory changes, on the financial performance of the organization. It suggests ways to mitigate these risks.

4. The fourth part of the text provides a detailed analysis of the financial data, including a breakdown of revenue and expenses. It identifies areas of strength and weakness.

5. The fifth part of the text offers recommendations for improving the financial performance of the organization. It suggests strategies for increasing revenue and reducing costs.

6. The sixth part of the text discusses the importance of communication and collaboration in achieving financial goals. It emphasizes the need for clear communication and teamwork.

7. The seventh part of the text provides a summary of the key findings and recommendations. It highlights the most important points and provides a clear path forward.

8. The eighth part of the text discusses the future outlook for the organization. It provides a forecast of financial performance and identifies potential opportunities and challenges.

9. The ninth part of the text provides a final conclusion and a call to action. It encourages the organization to take the necessary steps to improve its financial performance.

10. The tenth part of the text provides a list of references and sources used in the report. It includes books, articles, and other relevant materials.



# D 思维拓展 —— 练素养

15. (核心素养·乐学善学)

(1) 四边形  $ABCD$  中,  $\angle A = 140^\circ$ ,  $\angle D = 80^\circ$ .

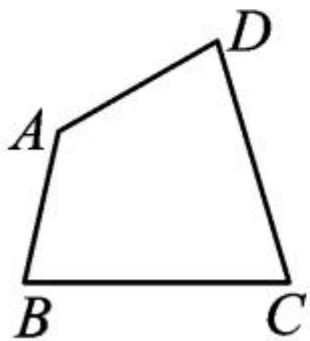
① 如图①, 若  $\angle B = \angle C$ , 则  $\angle C =$  \_\_\_\_\_;

② 如图②, 若  $\angle ABC$  的角平分线  $BE$  交  $DC$  于点  $E$ , 且  $BE \parallel AD$ , 则  $\angle C =$  \_\_\_\_\_;

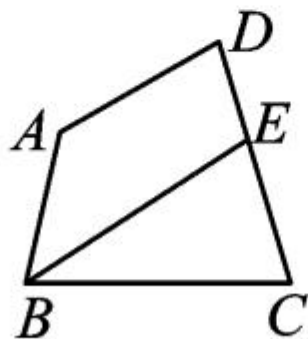
③ 如图③, 若  $\angle ABC$  和  $\angle BCD$  的角平分线交于点  $E$ , 则  $\angle BEC =$  \_\_\_\_\_;

(2) 在③的条件下, 当  $\angle A = \alpha$ ,  $\angle D = \beta$  时,  $\angle BEC$  与  $\alpha, \beta$  之间的数量关系为 \_\_\_\_\_;

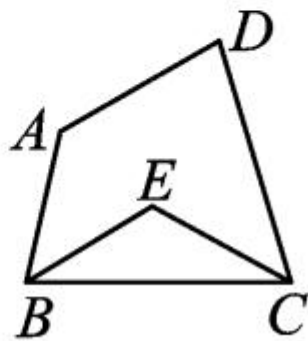
(3) 如图④, 在五边形  $ABCDE$  中,  $\angle A + \angle B + \angle E = 300^\circ$ ,  $DP, CP$  分别平分  $\angle EDC, \angle BCD$ , 求  $\angle P$  的度数.



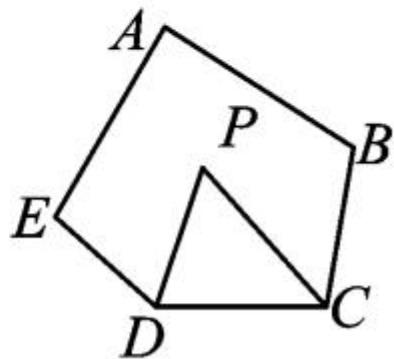
图①



图②



图③



图④

