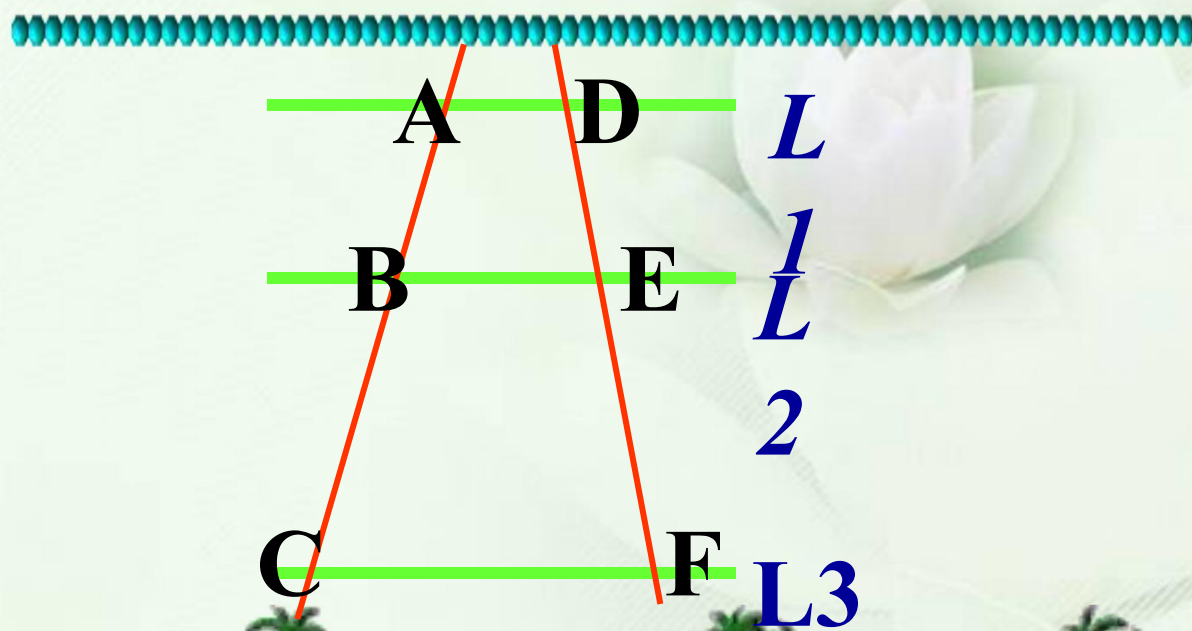
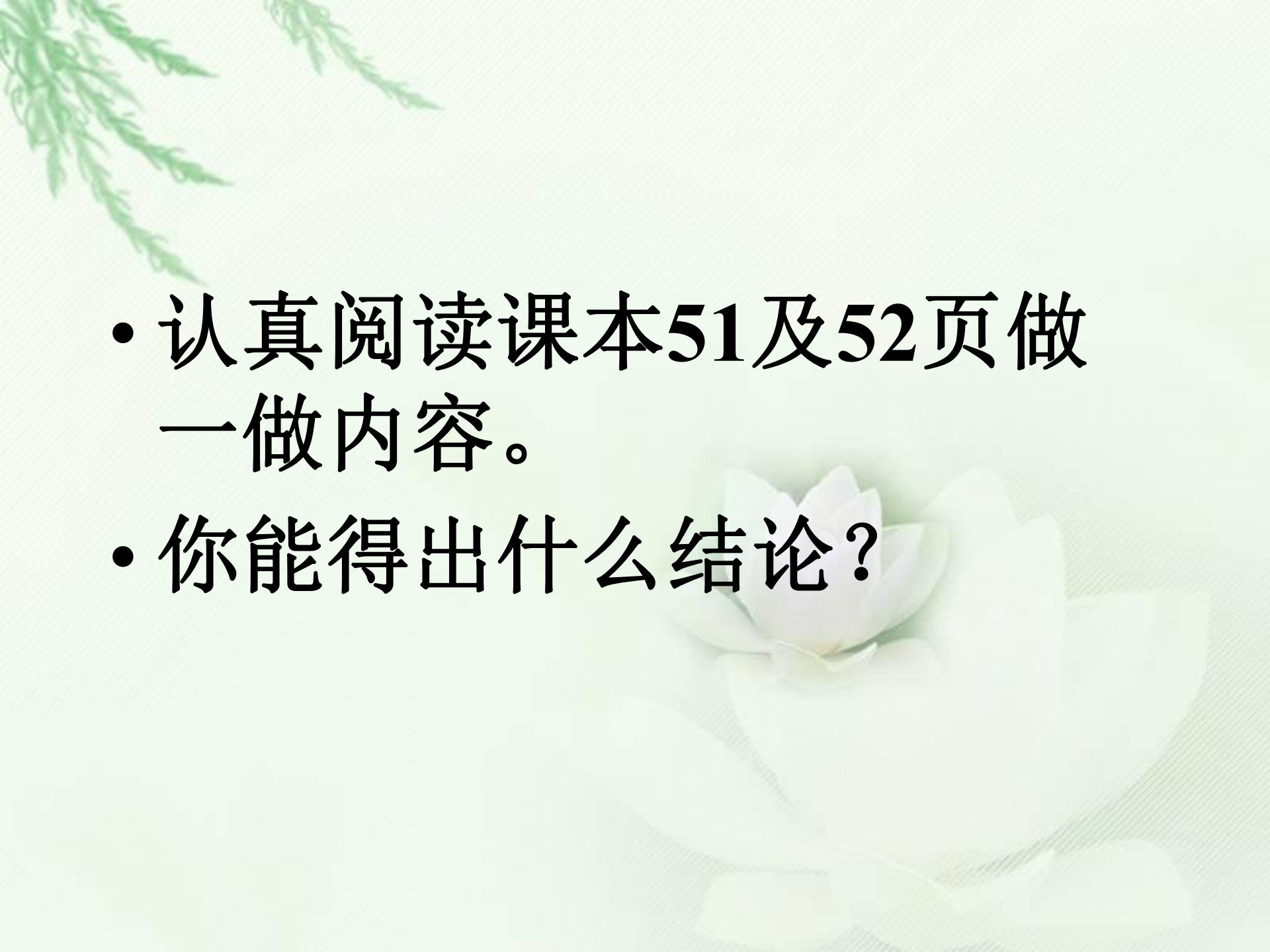


平行线分线段成比例



学习目标

- 掌握平行线分线段成比例定理
- 三角形一边的平行线定理

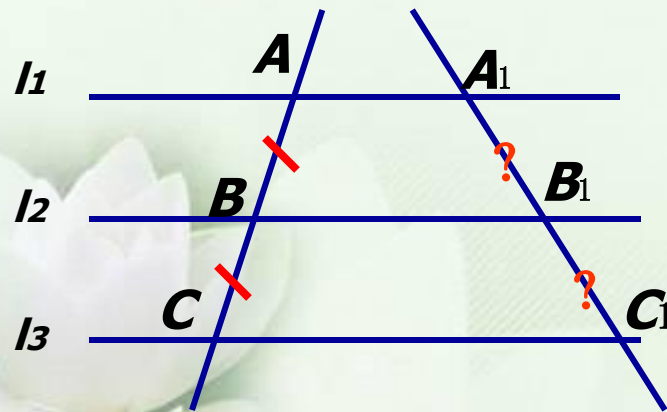
- 
- 认真阅读课本51及52页做一做内容。
 - 你能得出什么结论？

如果一组平行线在一条直线上截得的线段相等，那么在其它直线上截得的线段也相等.

符号语言

$\because$ 直线 $l_1 \parallel l_2 \parallel l_3$, $AB=BC$

$\therefore A_1B_1=B_1C_1$



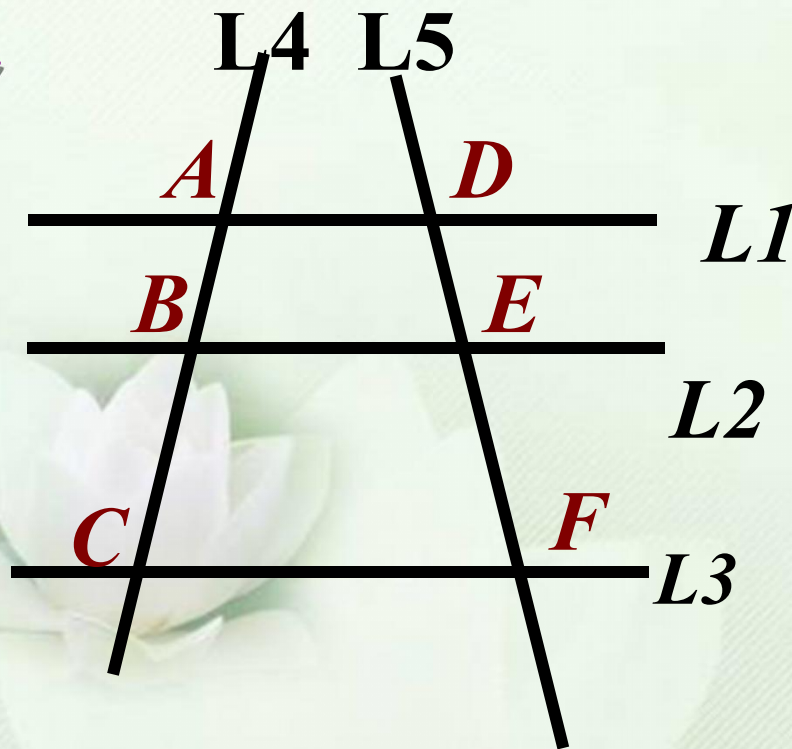
结论

两条直线被一组平行线所截,所得的对应线段成比例.

几何语言

$$\because L_1 // L_2 // L_3$$

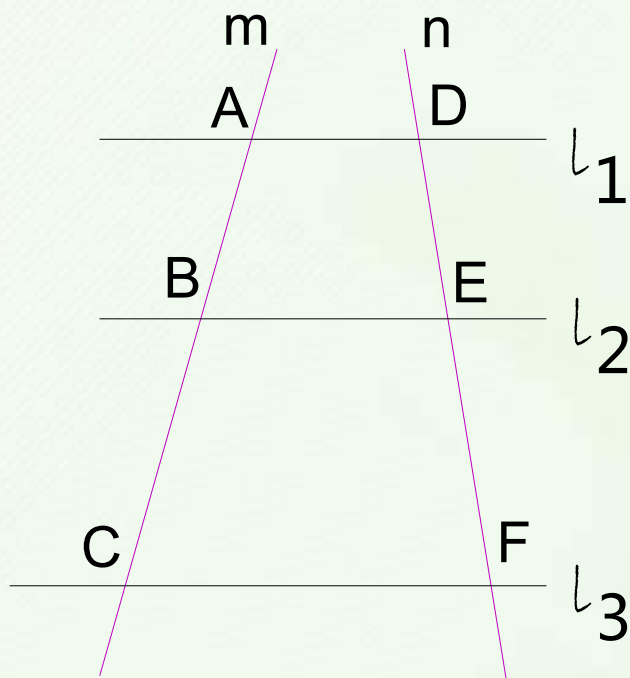
$$\therefore \frac{AB}{BC} = \frac{DE}{EF}$$



(平行线分线段成比例)

- **平行线分线段成比例：**

- 三条平行线截两条直线，所得的对应线段成比例.



$$l_1 \parallel l_2 \parallel l_3.$$

$$\frac{AB}{BC} = \frac{DE}{EF}$$

$$\frac{AB}{AC} = \frac{DE}{DF}$$

$$\frac{BC}{AC} = \frac{EF}{DF}$$

$$\frac{\text{上}}{\text{下}} = \frac{\text{上}}{\text{下}}$$

$$\frac{\text{上}}{\text{全}} = \frac{\text{上}}{\text{全}}$$

$$\frac{\text{下}}{\text{全}} = \frac{\text{下}}{\text{全}}$$

$$\frac{AB}{DE} = \frac{BC}{EF}$$

$$\frac{\text{左}}{\text{右}} = \frac{\text{左}}{\text{右}}$$

例1 如图, $l_1 \parallel l_2 \parallel l_3$, $AB=4$, $DE=3$, $EF=6$, 求 BC .

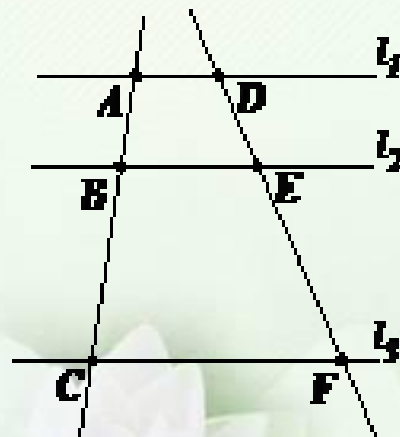
解: $\because l_1 \parallel l_2 \parallel l_3$

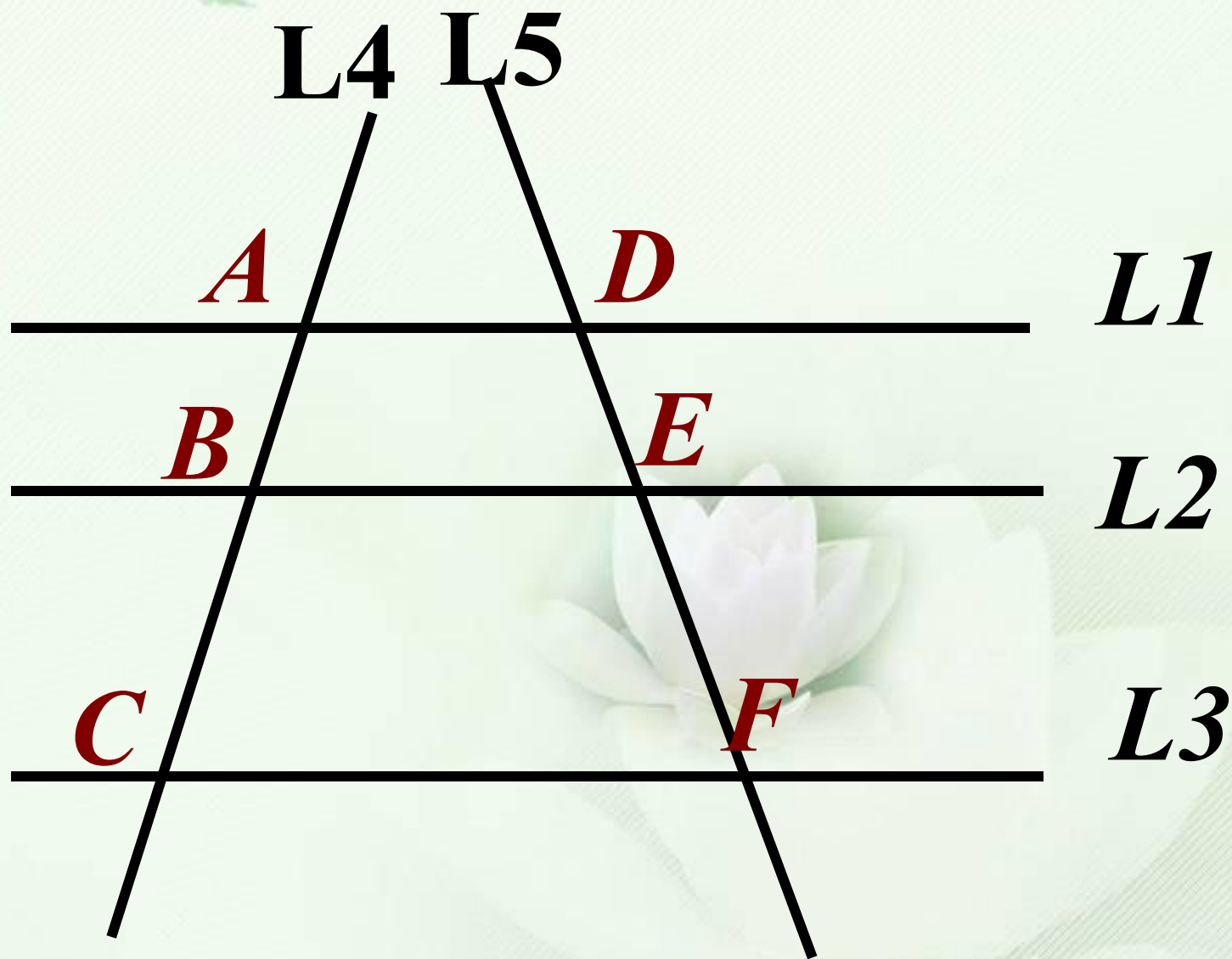
$$\therefore \frac{AB}{BC} = \frac{DE}{EF}$$

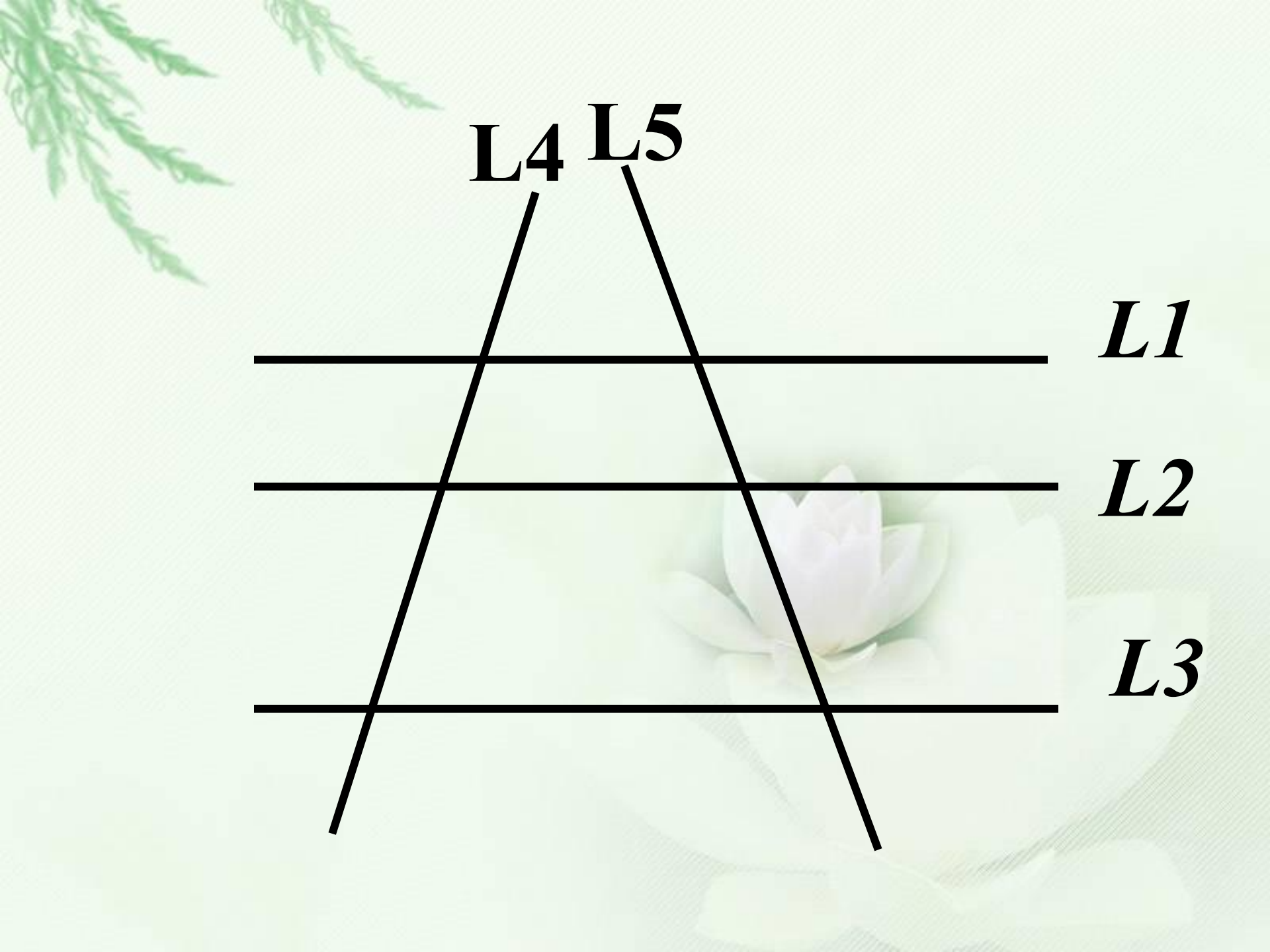
$$\because AB=4, DE=3, EF=6$$

$$\therefore \frac{4}{BC} = \frac{3}{6}$$

$$\therefore BC=8$$







L4 L5



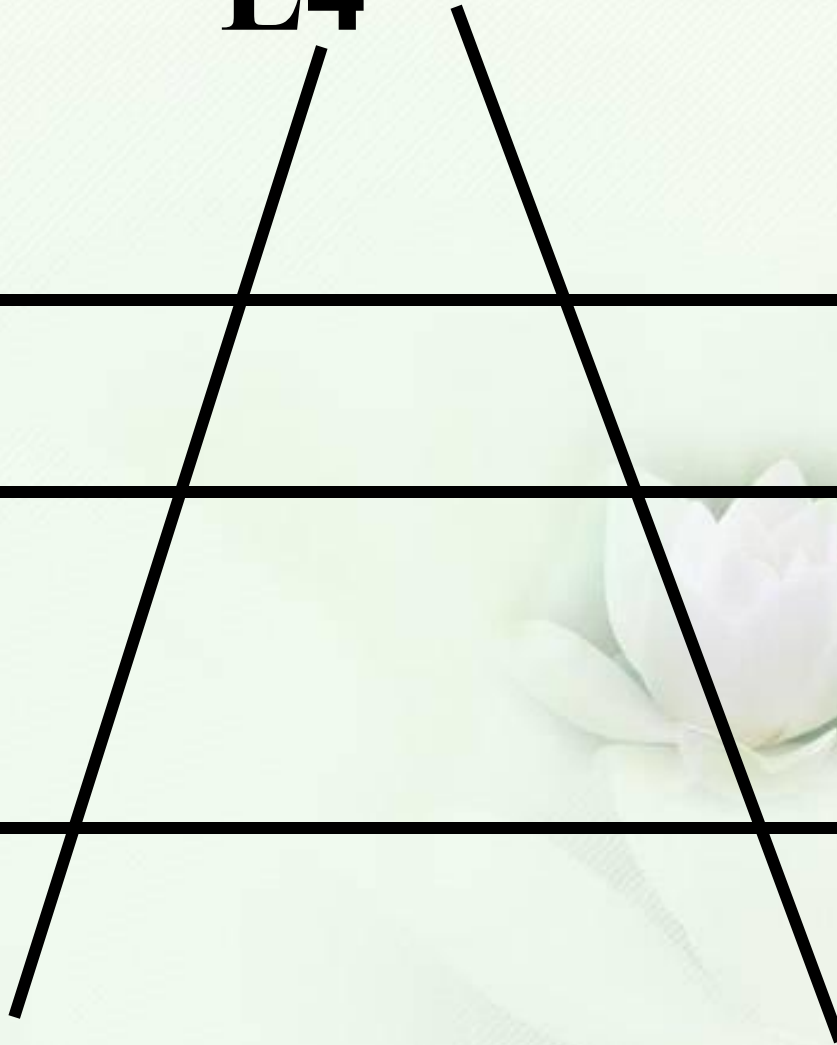
L1



L2



L3

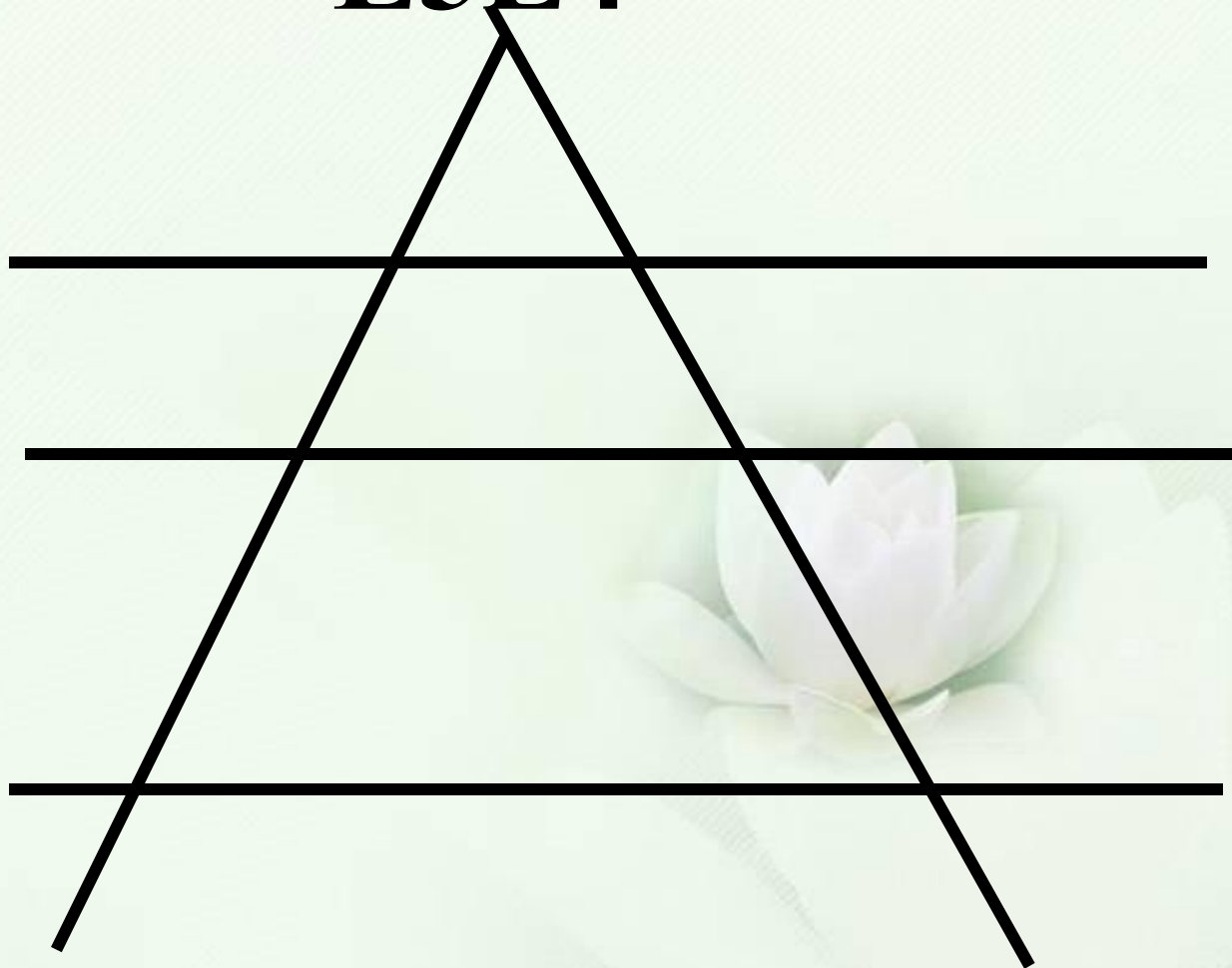


L5L4

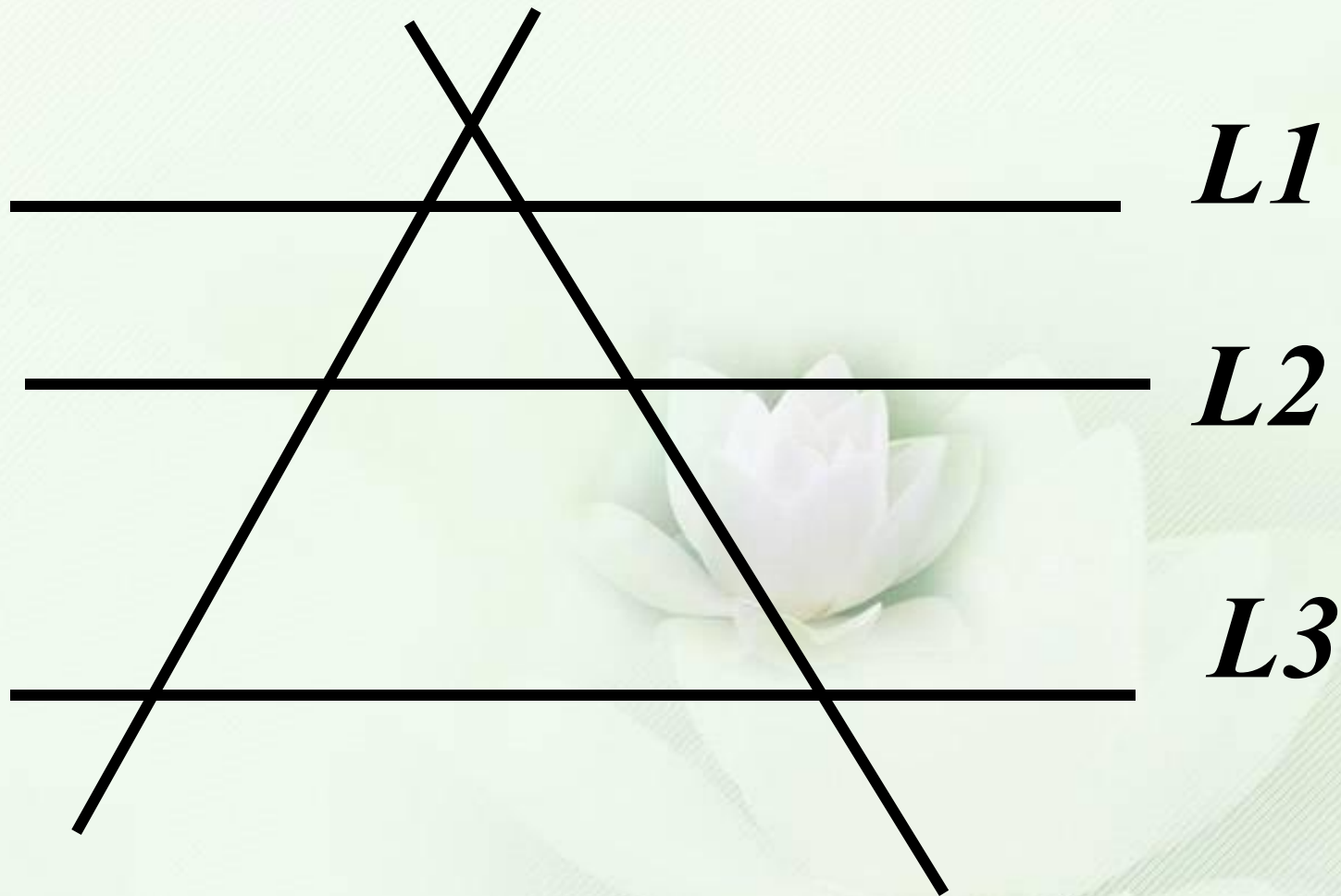
L1

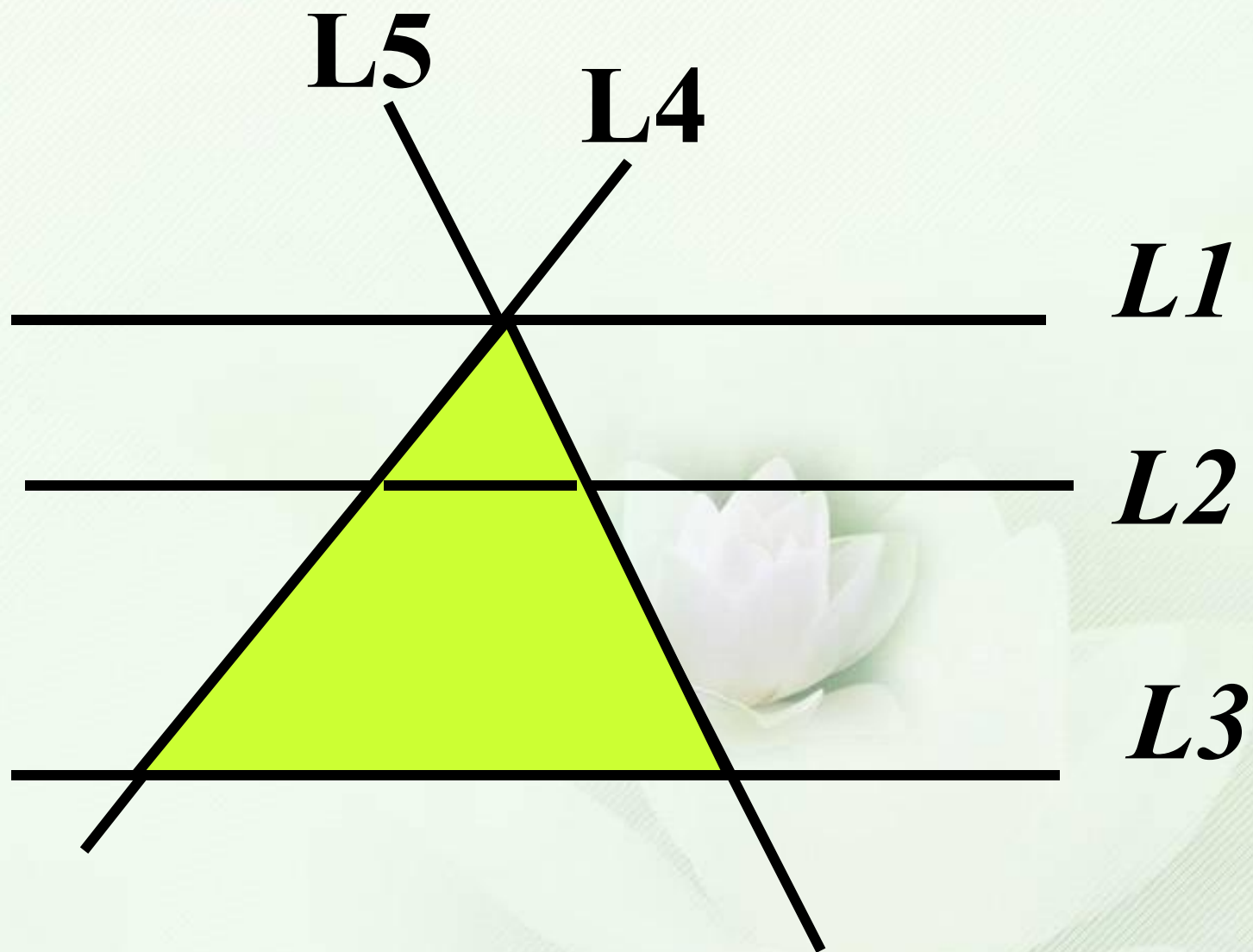
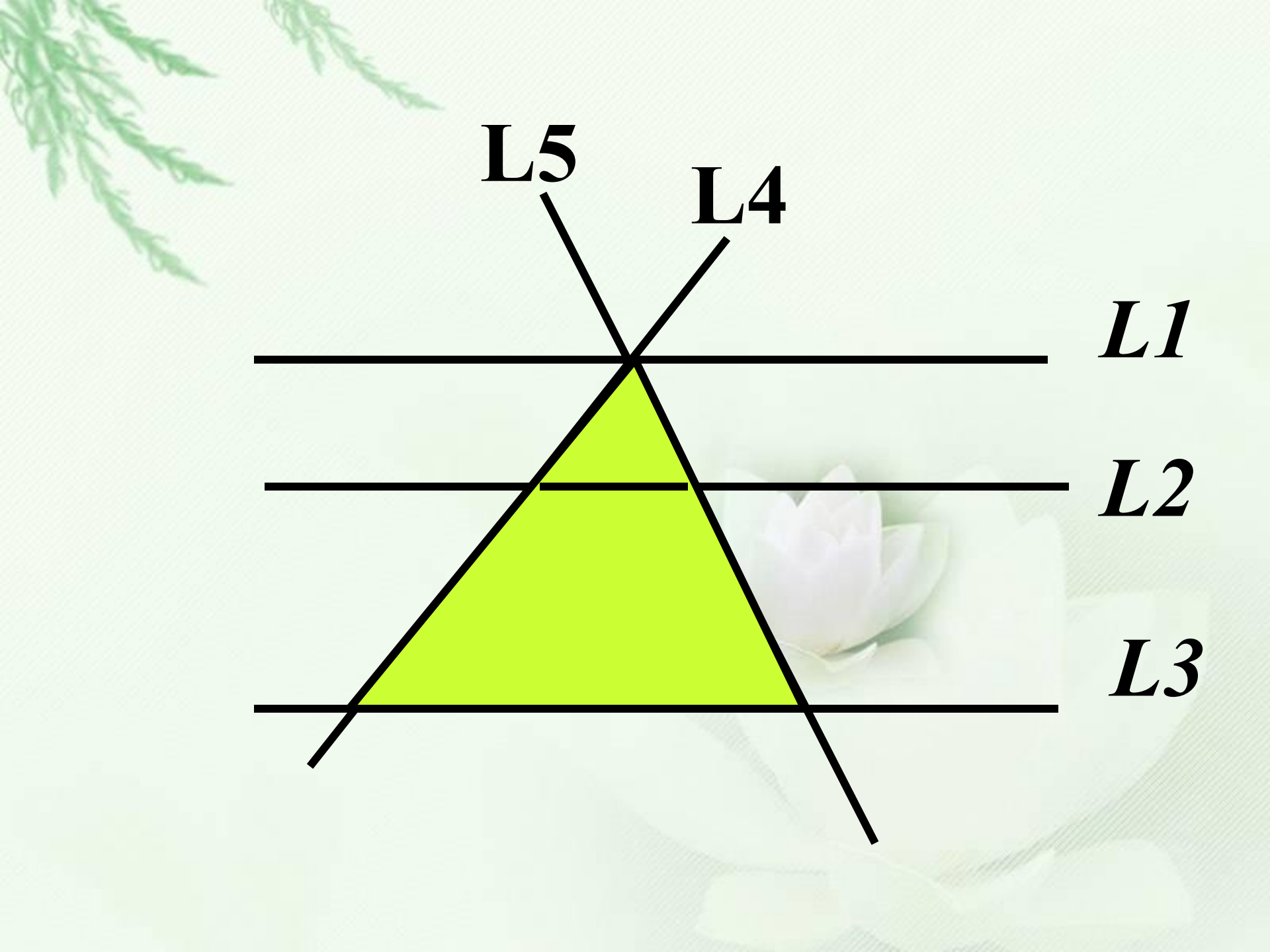
L2

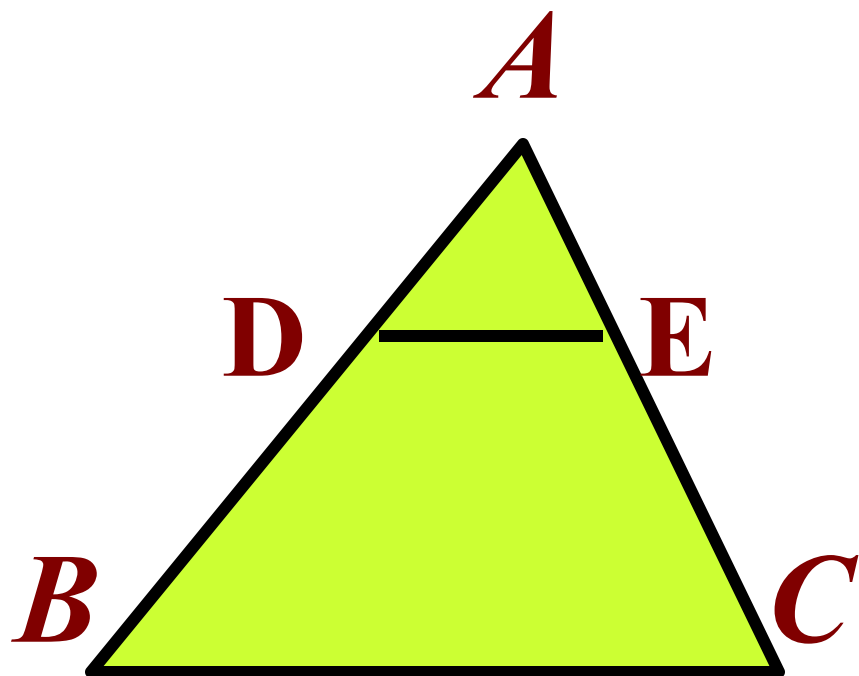
L3

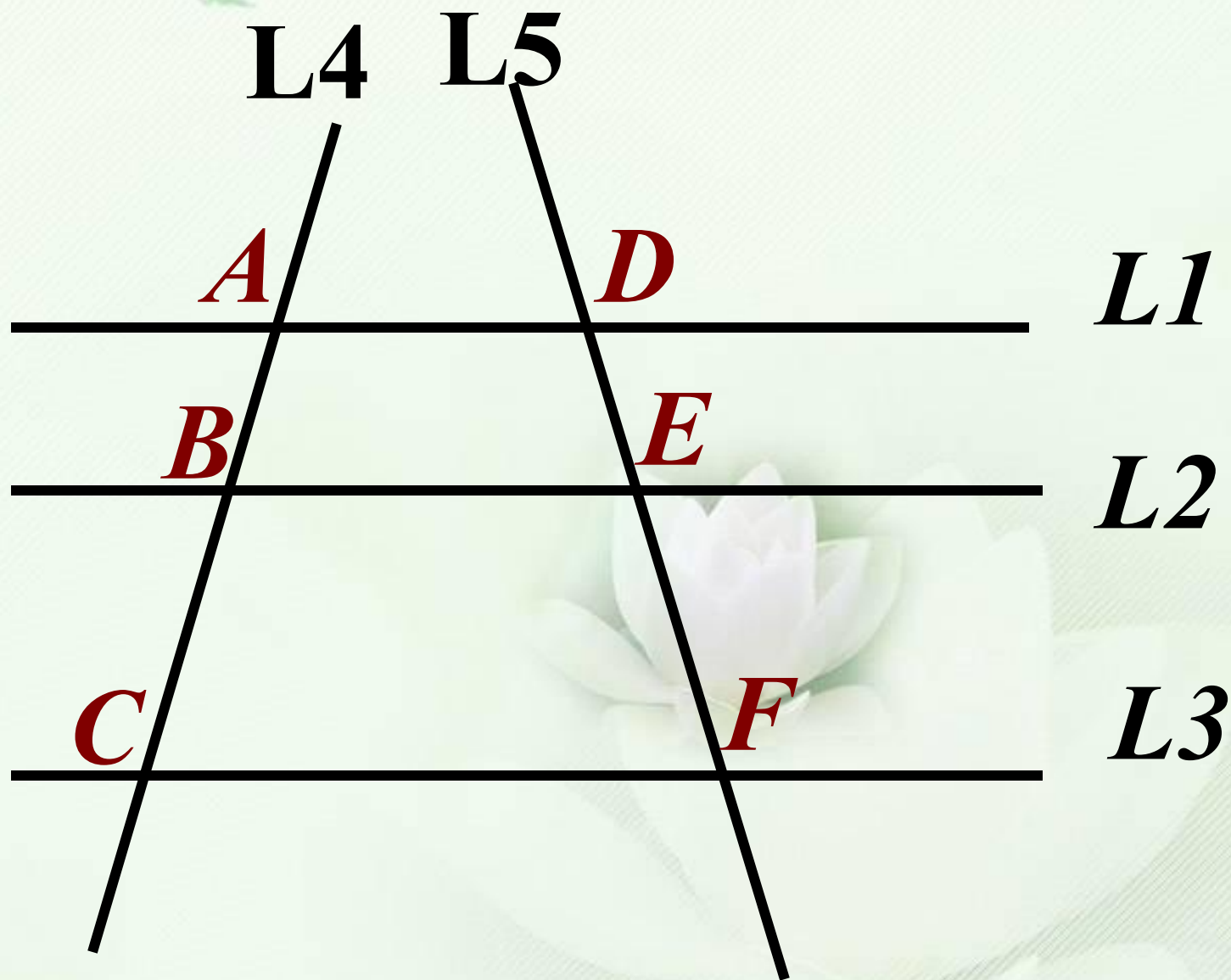


L5 L4





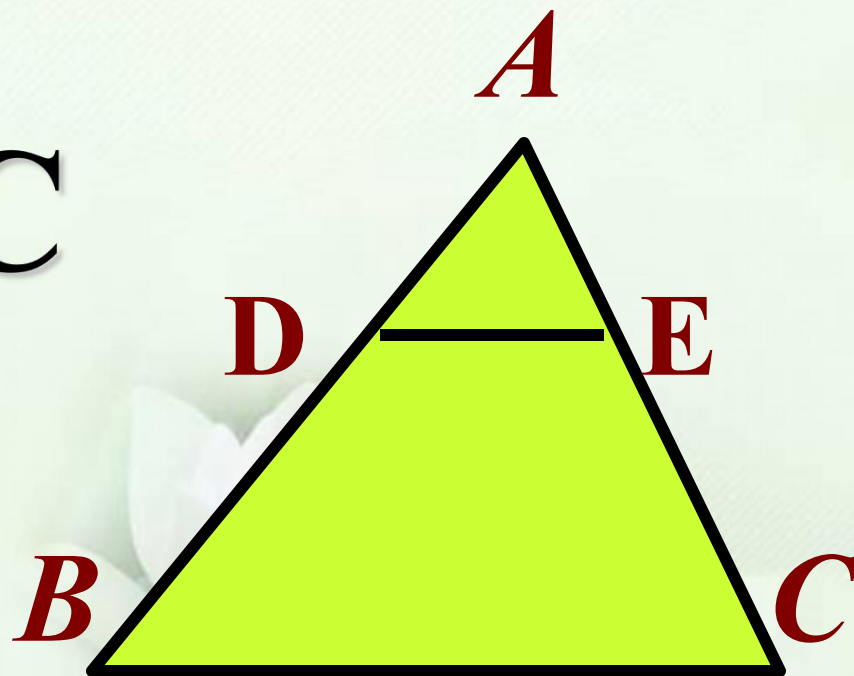


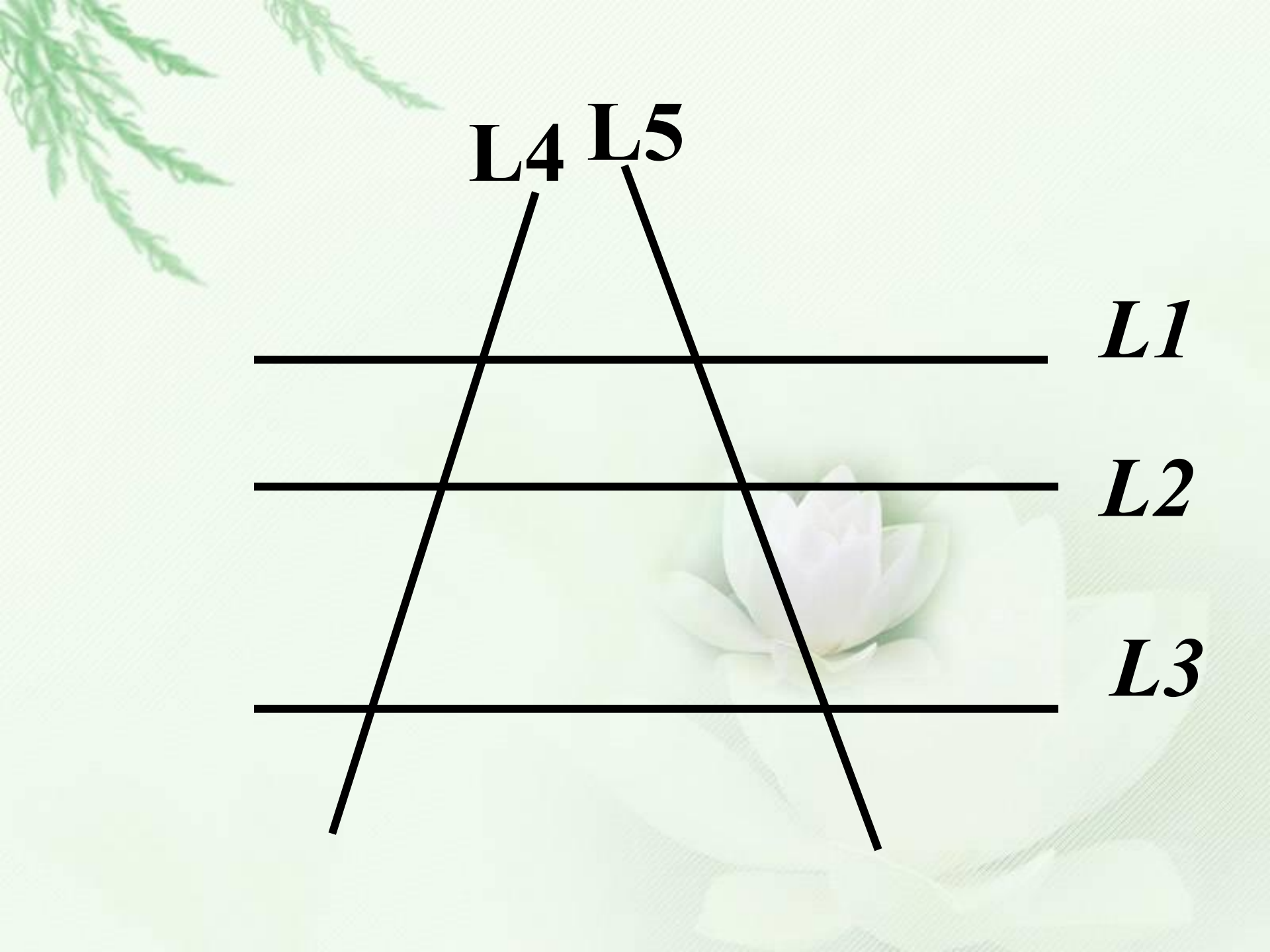


几何语言

∴ **DE** **//** **BC**

$$\therefore \frac{AD}{AB} = \frac{AE}{AC}$$





L4 L5



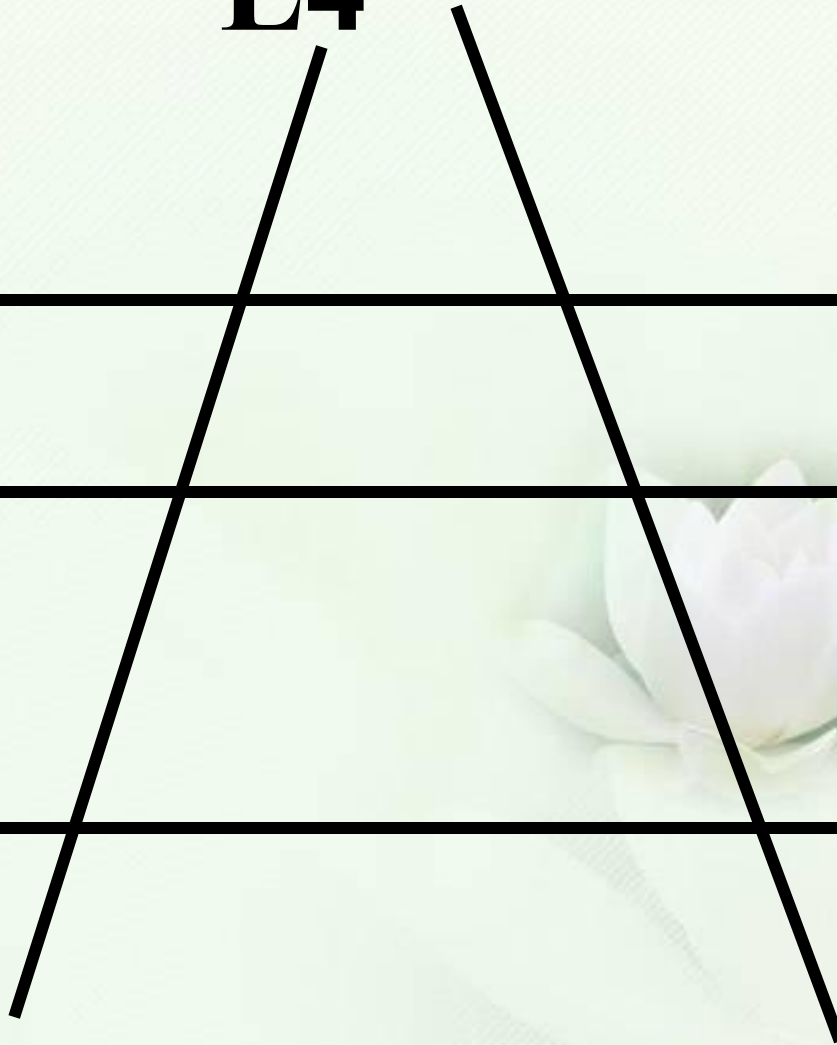
L1



L2



L3



L5L4



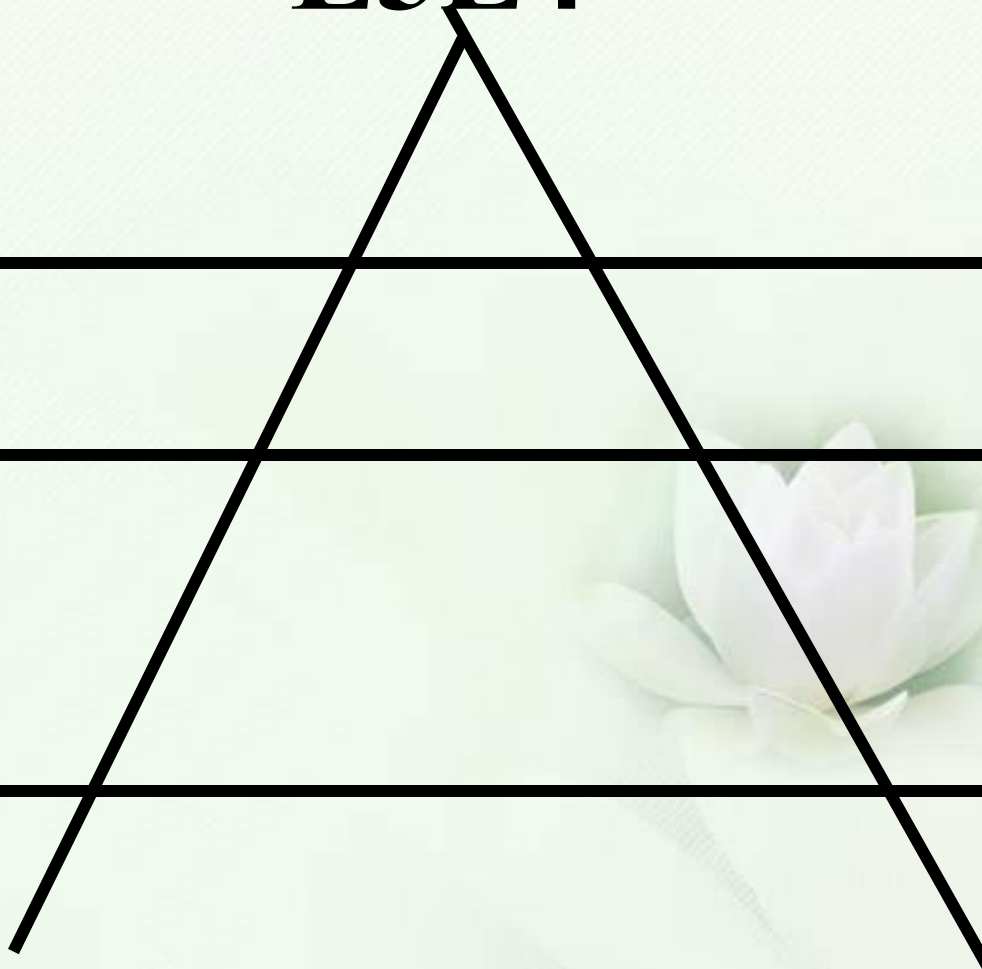
L1



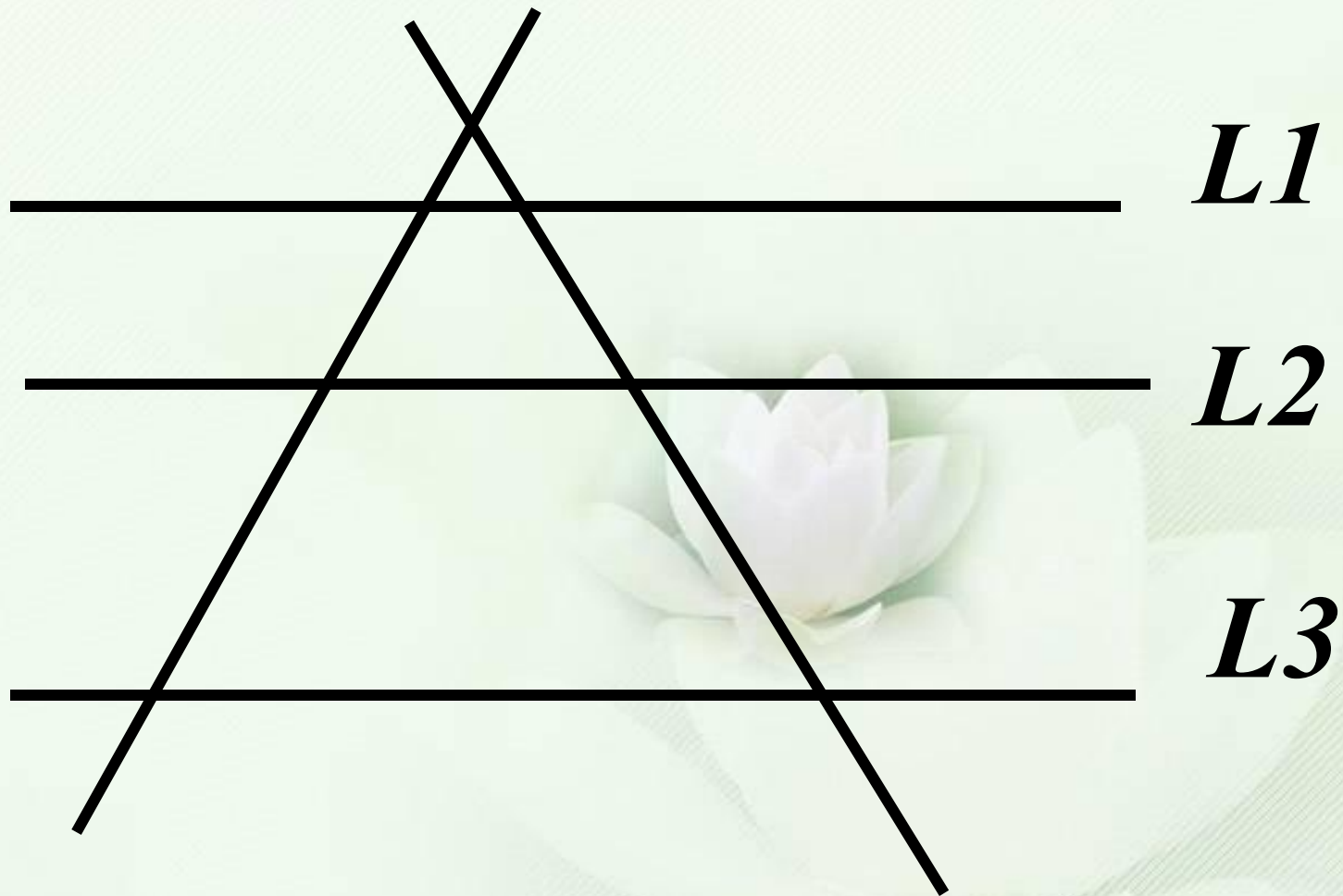
L2

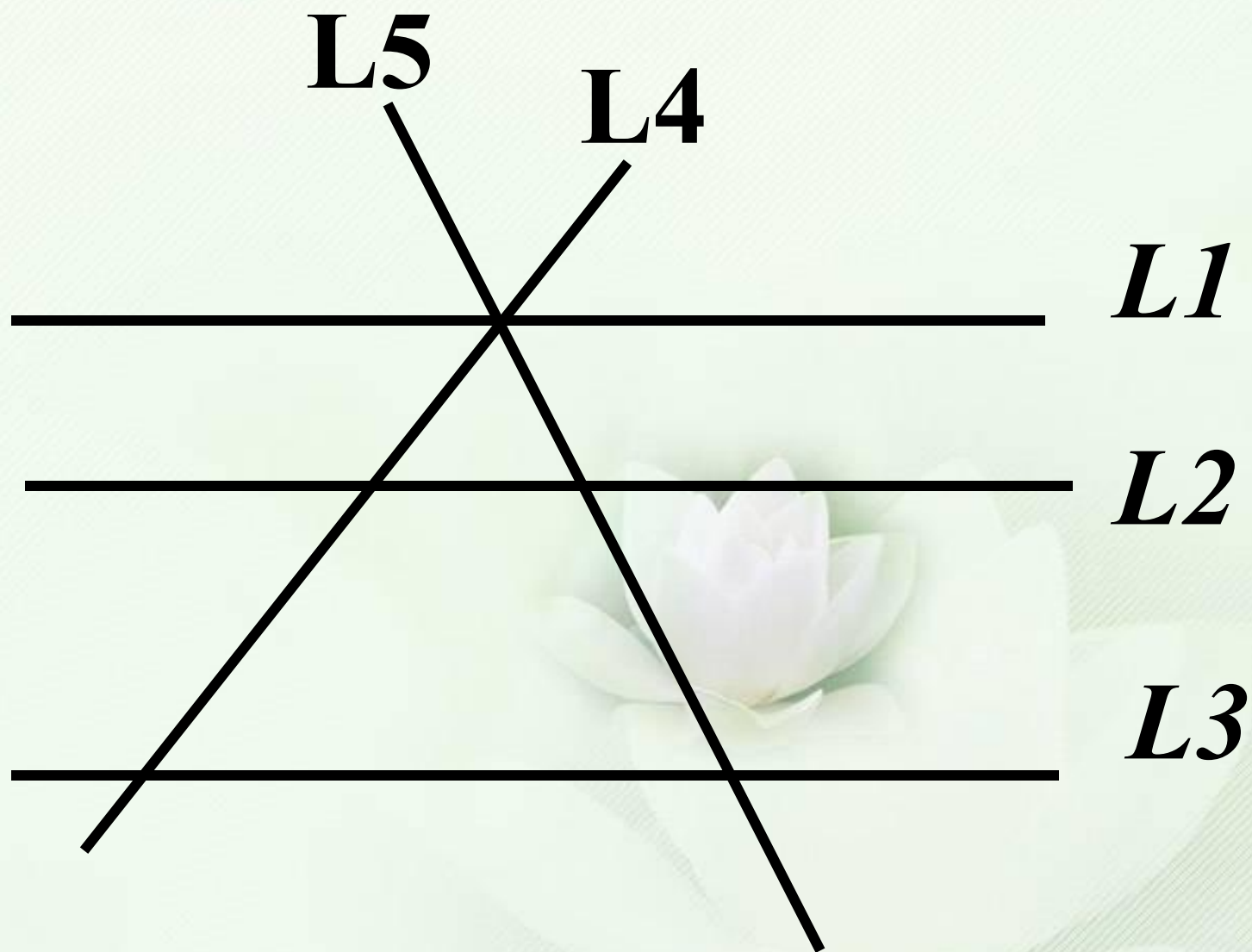
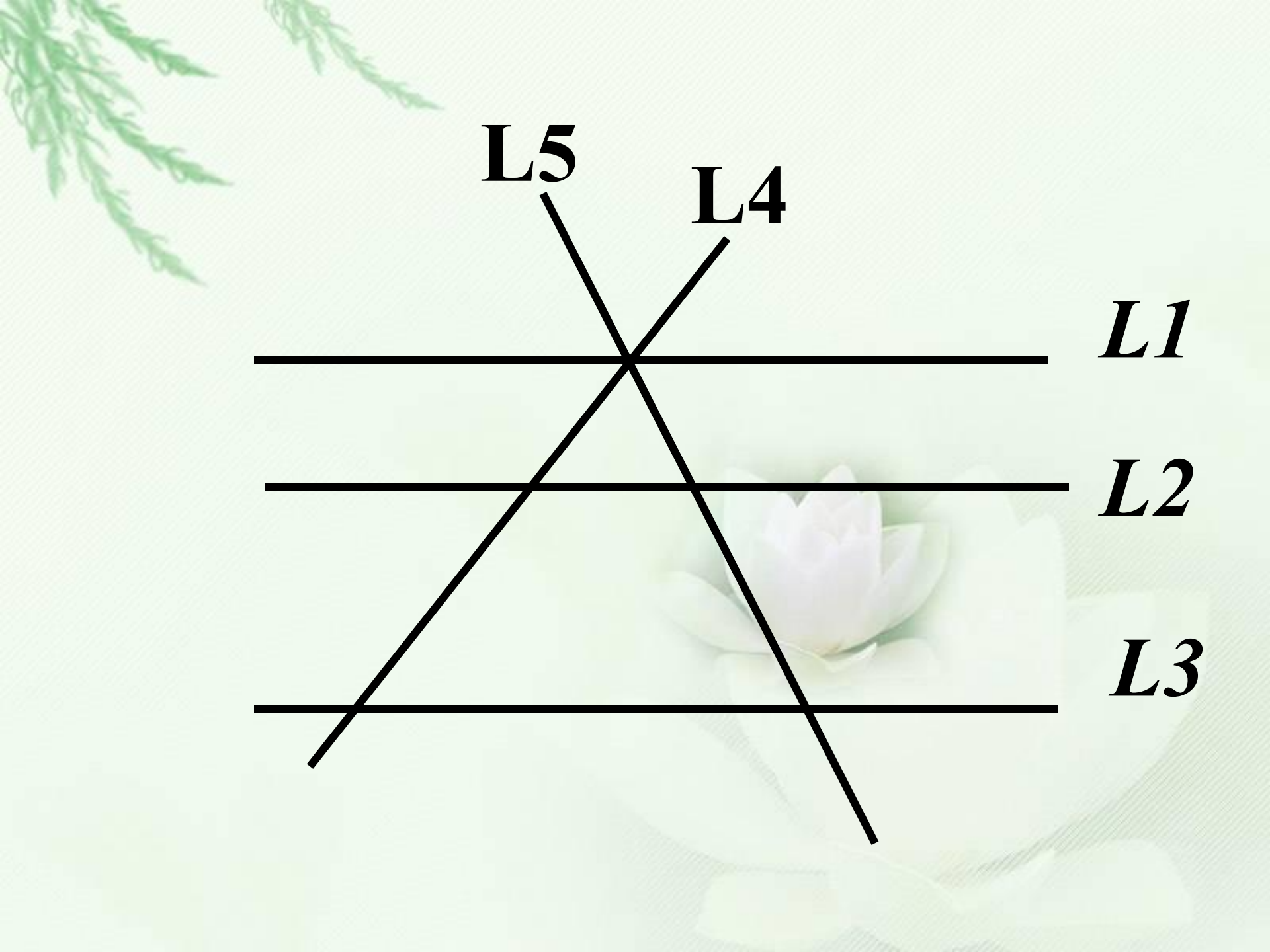


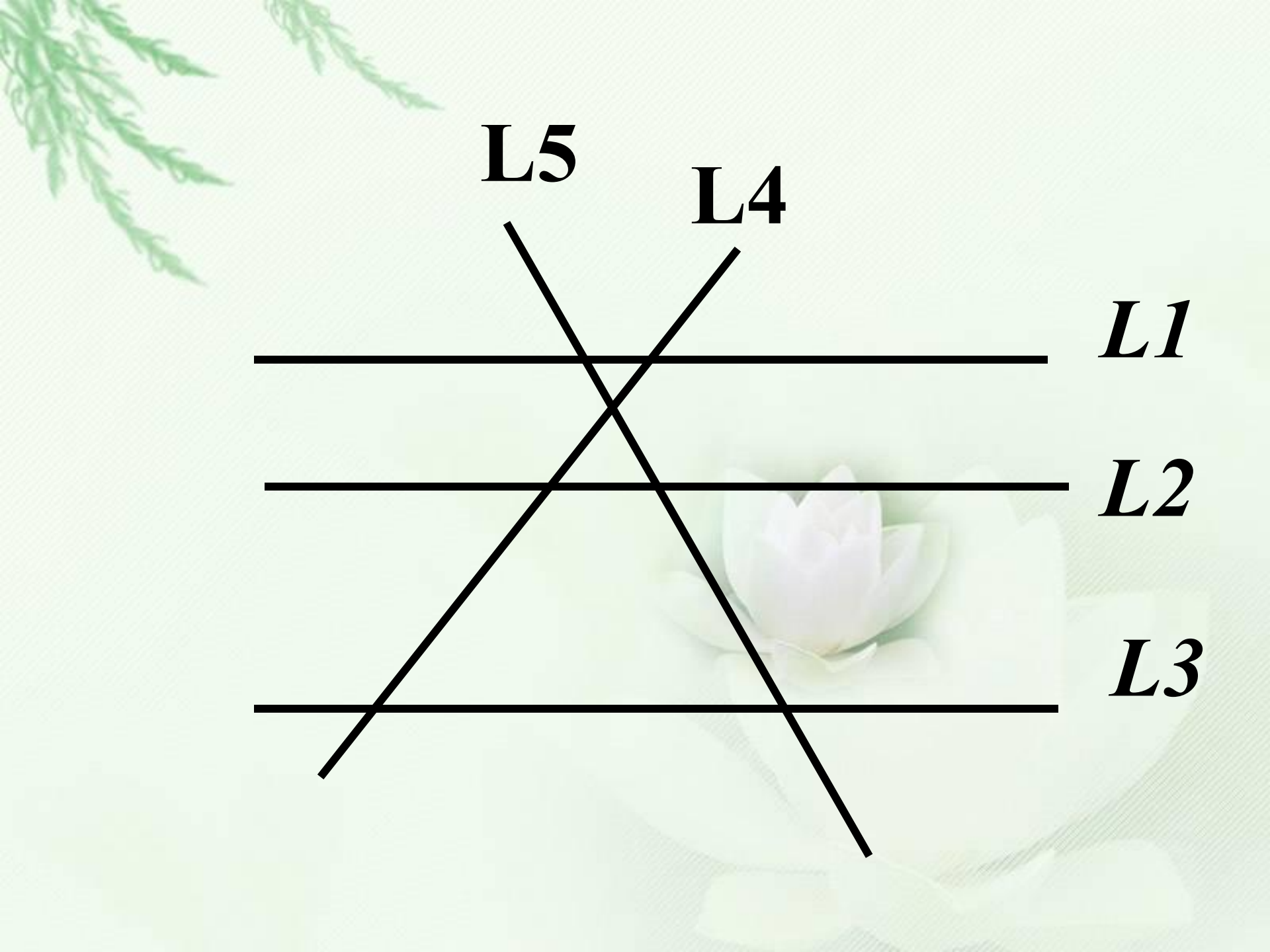
L3



L5 L4

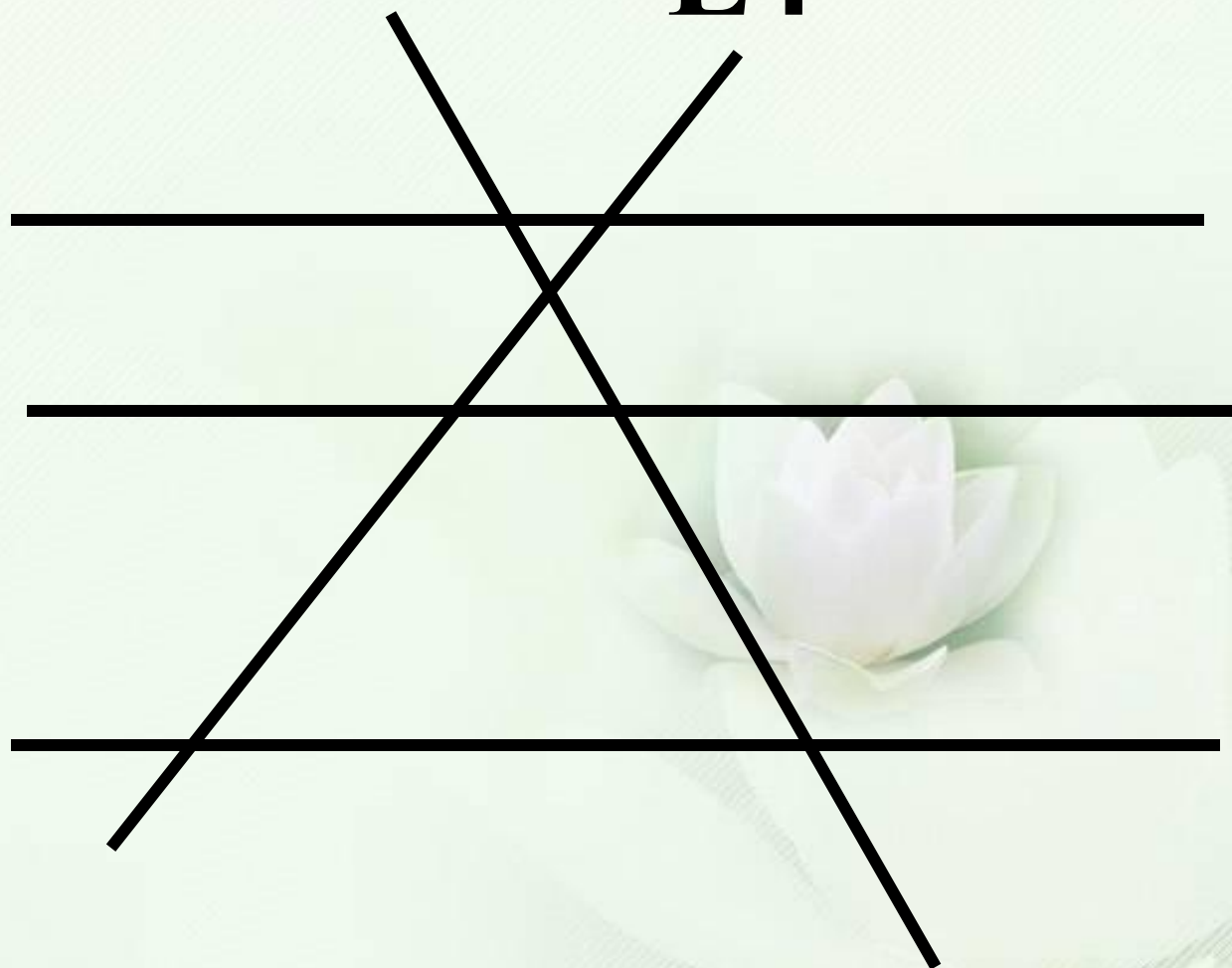






L5

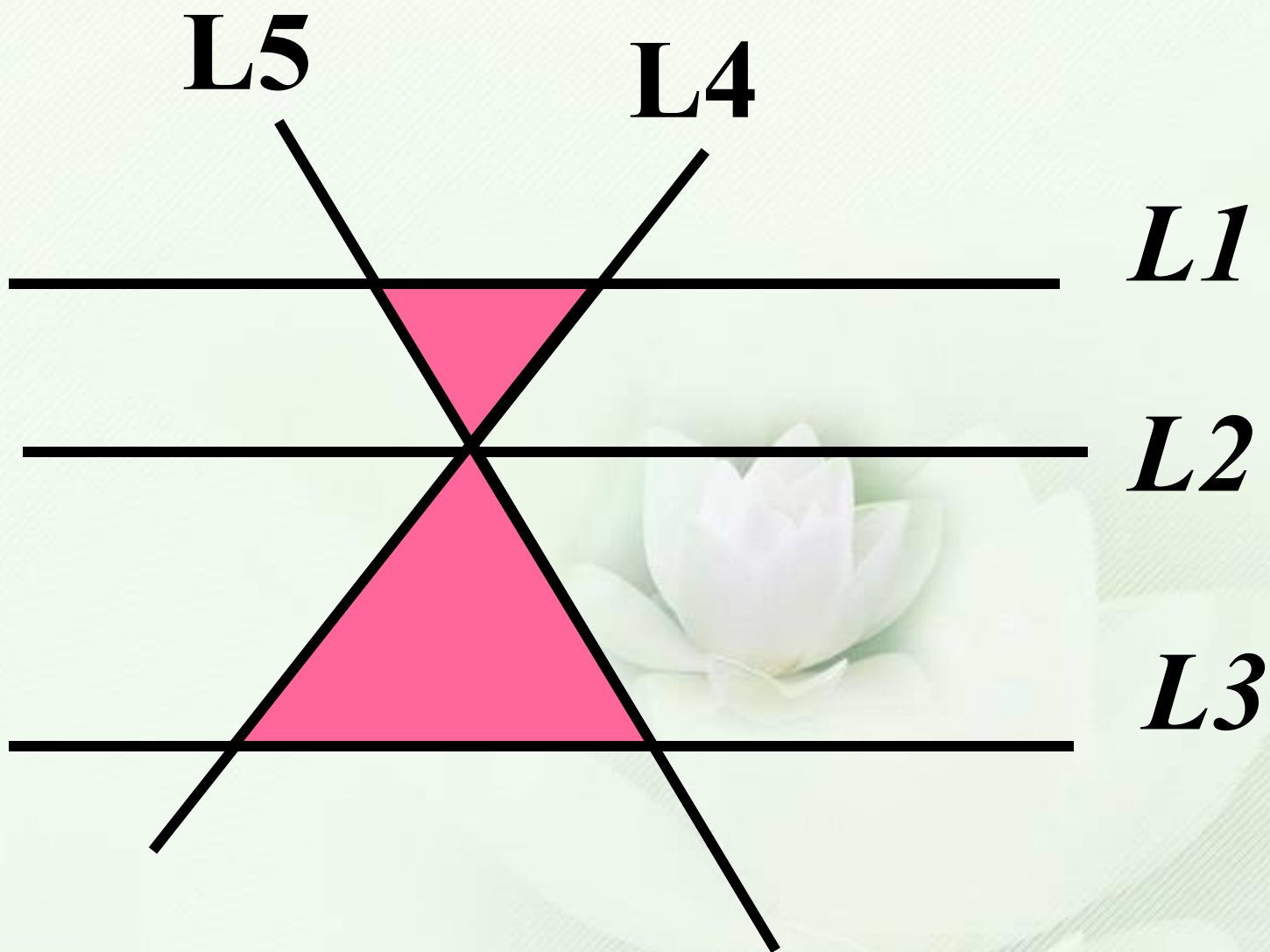
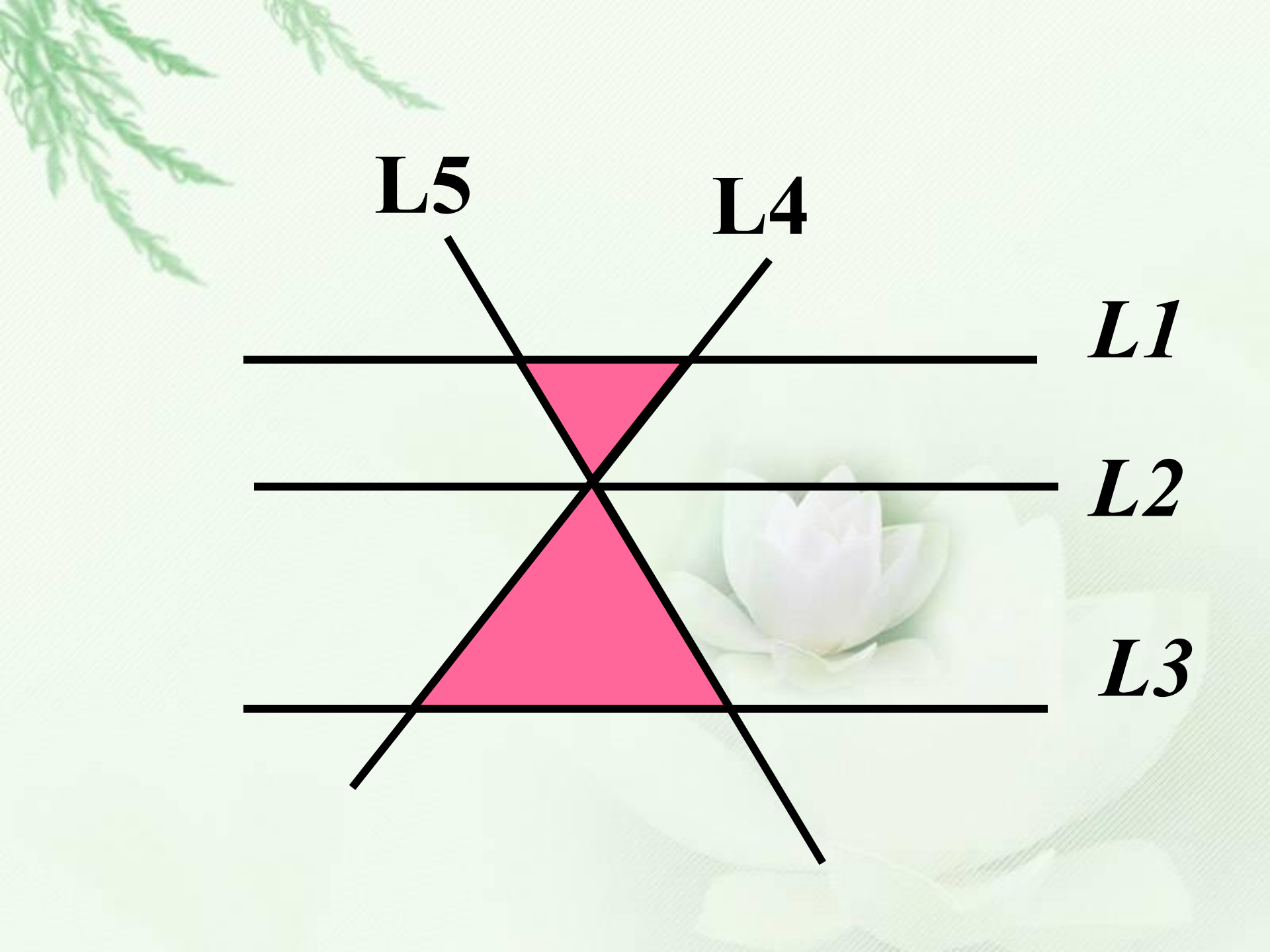
L4



L1

L2

L3

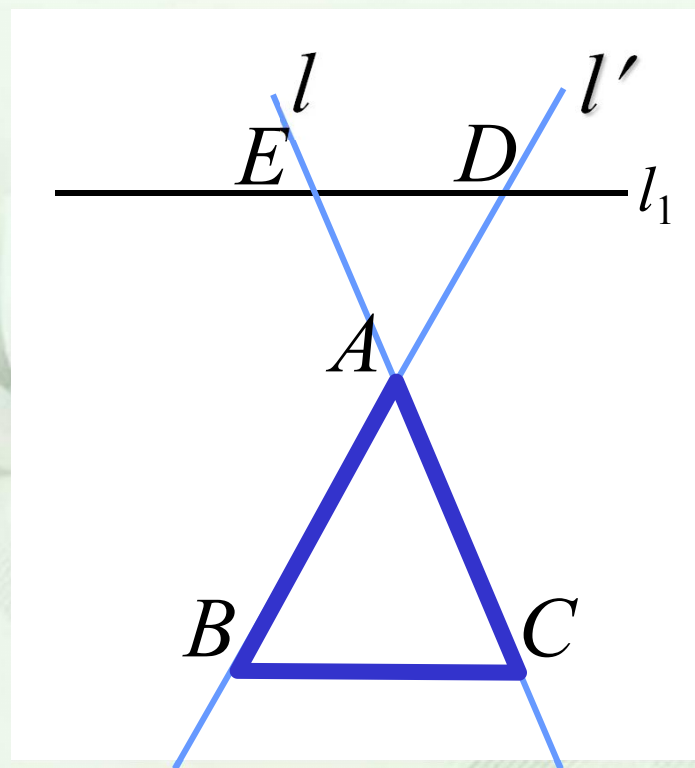
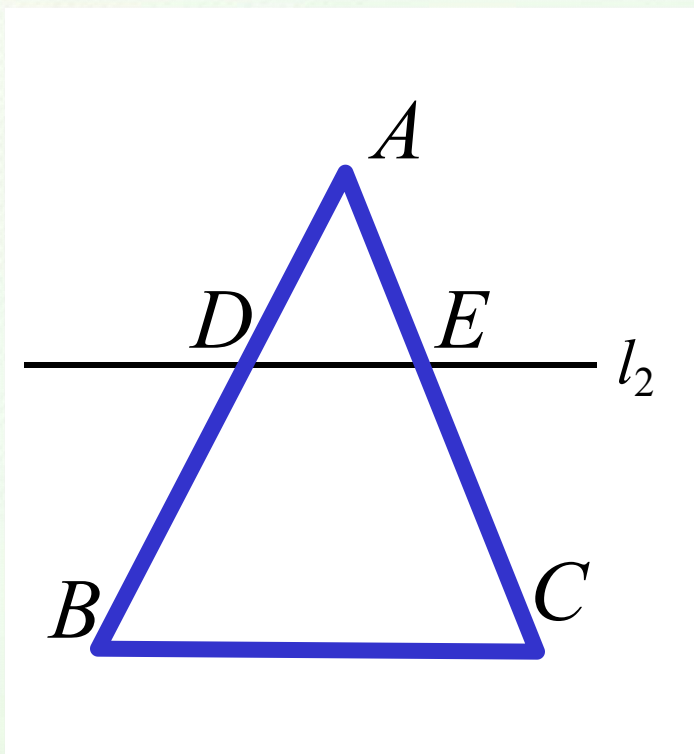


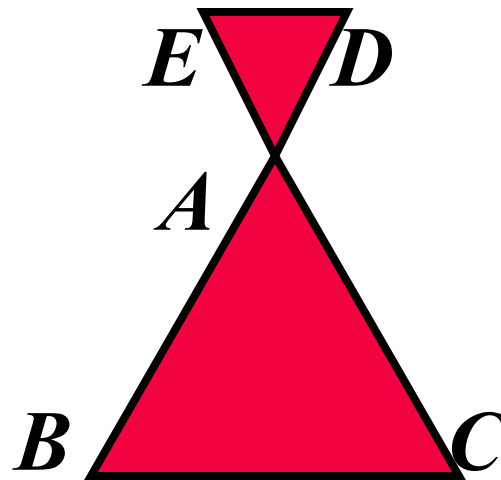
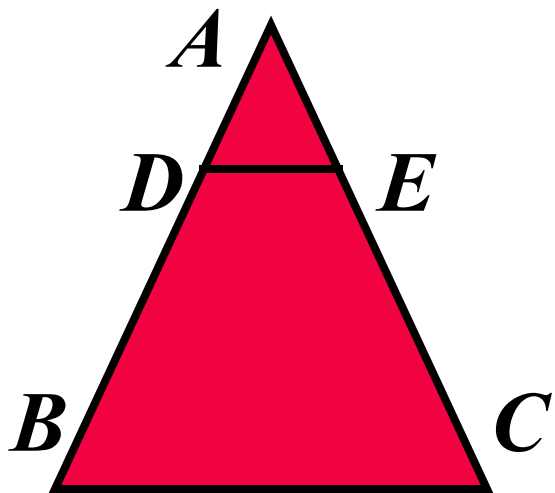
结论

平行于三角形一边的直线截其他两边(或两边的延长线)所得的对应线段成比例.

$$\frac{AD}{DB} = \frac{AE}{EC}$$

$$\frac{AB}{AD} = \frac{AC}{AE}$$





数学几何语言

$$\because DE \parallel BC$$

$$\therefore \frac{AD}{AB} = \frac{AE}{AC}$$

数学几何语言

$$\because DE \parallel BC$$

$$\therefore \frac{AD}{AB} = \frac{AE}{AC}$$

例2 如图，E为 $\square$ ABCD的边CD延长线上的一点，连结BE，交AC于点O，交AD于点F，求证： $\frac{BO}{FO} = \frac{EO}{BO}$

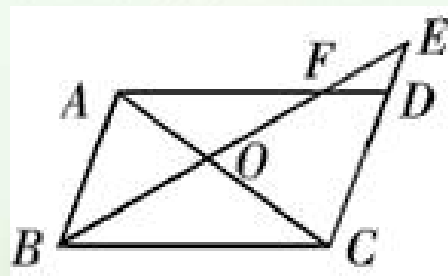
证明： $\because AF \parallel BC$

$$\therefore \frac{BO}{FO} = \frac{CO}{AO}$$

$\because AF \parallel BC$

$$\therefore \frac{EO}{BO} = \frac{CO}{AO}$$

$$\therefore \frac{BO}{FO} = \frac{EO}{BO}$$



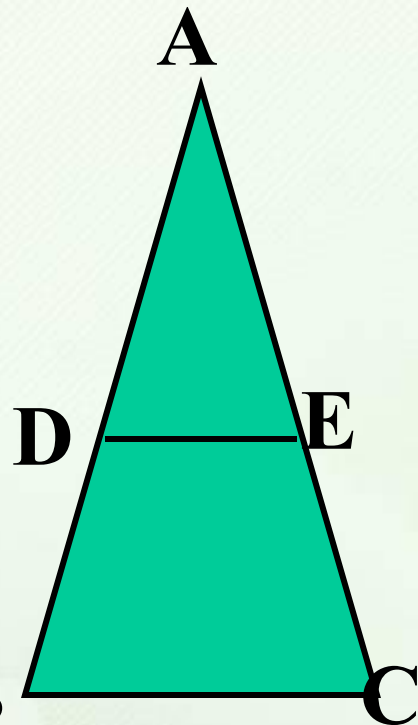
课堂测试

1、判断题:

如图: $DE \parallel BC$, 下列各式是否正确

A: $\frac{AD}{AB} = \frac{AE}{AC}$ (✓) B: $\frac{AD}{BD} = \frac{AE}{CE}$ (✓)

C: $\frac{AD}{AC} = \frac{AE}{AB}$ (✗) D: $\frac{AD}{AE} = \frac{AB}{AC}$ (✓)



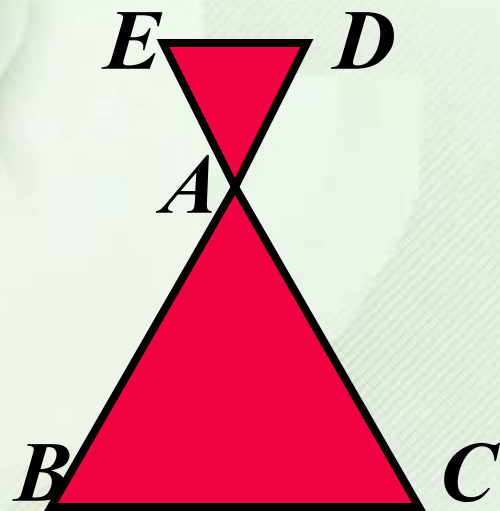
2、填空题:

如图: $DE \parallel BC$,

已知:

$$\frac{AE}{AC} = \frac{2}{5}$$

求: $\frac{AD}{AB} = \underline{\frac{2}{5}}$



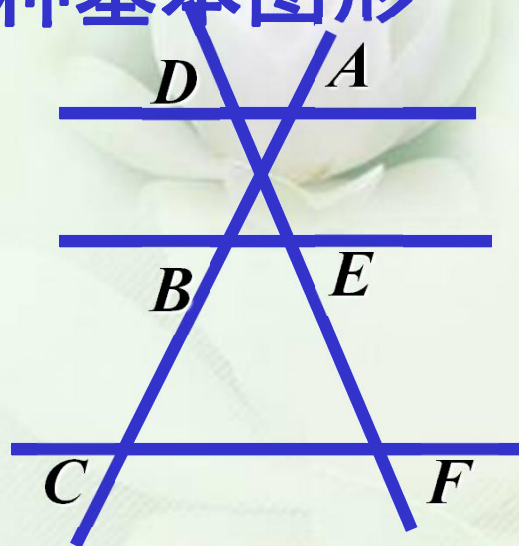
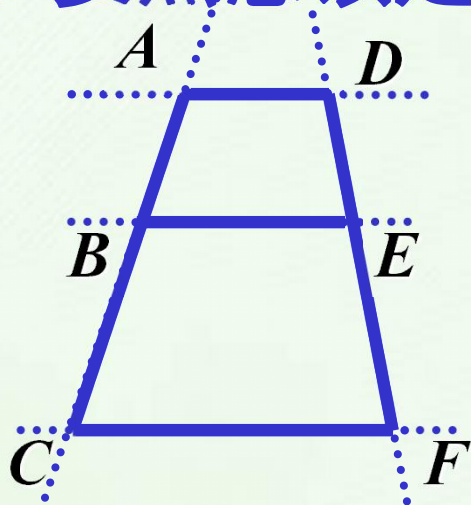
小结

一、平行线分线段成比例基本事实：

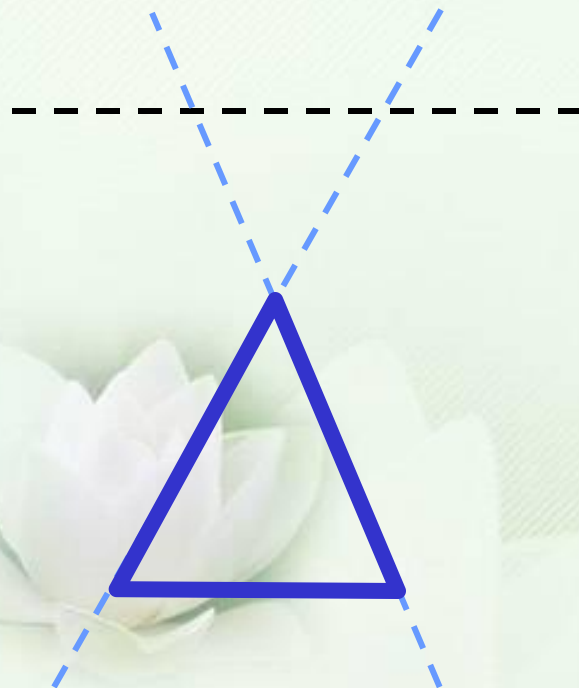
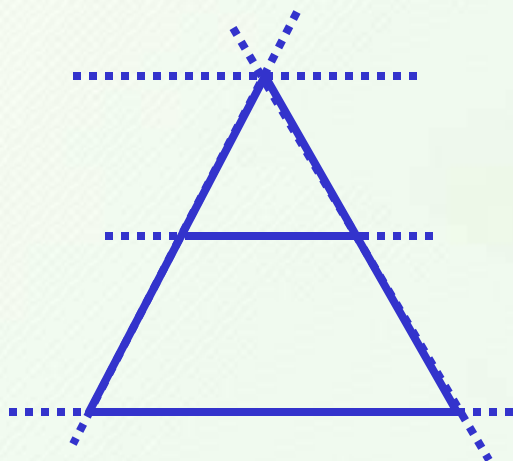
两条直线被一组平行线所截，所得的对应线段成比例。（关键要能熟练地找出对应线段）

平行于三角形一边的直线截其他两边（或两边的延长线），所得的对应线段成比例。

二、要熟悉该定理的几种基本图形



三、注意该定理在三角形中的应用



作业：

习题23.1 5, 6, 7题



再见

