

2013年东分答案

连结EF, 连结BD.

\because E是BC的三等分点,
F是CD的三等分点.

$\therefore EF \parallel BD$

可知四边形EFDB是一个梯形, 符合梯形蝴蝶模型的结论.

$\because CD = 3FC, BC = 3EC$

$$\therefore \frac{S_{\triangle EFC}}{S_{\triangle BCD}} = \frac{1}{9}$$

$$\therefore \frac{S_{\text{梯}EFDB}}{S_{\triangle BCD}} = \frac{8}{9}$$

梯形蝴蝶模型中: $EF:BD = 1:3$

$$S_{\triangle BGD}:S_{\text{梯}EFDB} = 3^2:(1+3)^2 = 9:16$$

$$\therefore \frac{S_{\triangle BGD}}{S_{\text{梯}EFDB}} = \frac{9}{16}$$

$$\therefore \frac{S_{\triangle BGD}}{S_{\triangle BCD}} = \frac{8}{9} \times \frac{9}{16} = \frac{1}{2}$$

$$\therefore \frac{S_{\triangle BGD}}{S_{\text{正} \triangle ABCD}} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$$

$$\therefore \frac{S_{\text{阴影}ABGD}}{S_{\text{正} \triangle ABCD}} = \frac{(\frac{1}{2} + \frac{1}{4})}{1} = \frac{3}{4}$$