

# **Question:**

If the ratio of the length of AB to the length of EB is 5:1, and the area of the triangle BED is  $5a^2 + 10$ , what is the area of triangle ABC?

# **Choices:**

A:  $5a^2 + 10$ 

B:  $25a^2 + 50$ 

C:  $25a^2 + 100$ 

D:  $125a^2 + 250$ 

E: Cannot be determined

## **SVE-Math**

- ✓ Since AB:EB=5:1, we have  $AB=5 \times EB$
- ✓ ∠A is congruent to ∠BED and ∠C is congruent to ∠D, so we can conclude that ΔABC is similar to ΔBED
- ✓ Therefore, the ratio of the areas of  $\triangle$ ABC to  $\triangle$ BED is equal to the square of the ratio of AB to EB, which is  $(AB/EB)^2=25$
- The area of ΔABC is  $25 \times (5a^2 + 10) = 125 \times a^2 + 250$ Therefore, the answer is **D**

### **GPT-4V**

- ✓ The ratio of the length of AB to EB is given as 5:1. This means AB = 5 × EB
- X The ΔABC and ΔEBC share the same height from point C
- Thus, the ratio of their areas is the same as the ratio of their bases (AB to EB), which is 5:1
- The area of  $\triangle ABC$  is  $5 \times (5a^2 + 10) = 25 \times a^2 + 50$ Therefore, the answer is **B**

### InternVL2

- ✓ Since AB:EB=5:1, we have  $AB=5 \times EB$
- X E is a point on AB, and ED is parallel to AC. When a line is drawn parallel to one side of a triangle and intersects the other two sides, it forms a similar triangle. Therefore, Δ ABC is similar to ΔBED
- ✓ Since AB:EB=5:1, the ratio of areas will be 5<sup>2</sup>:1=25:1
- The area of ΔABC is  $(5a^2 + 10) \times 25 = 125 \times a^2 + 250$ Therefore, the answer is **D**