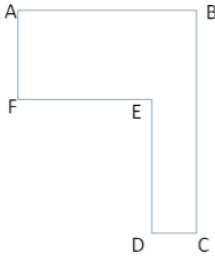


Name _____

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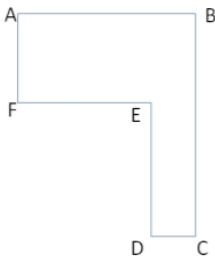
Problem Set Answer Key

1. If $AB = 20$ units, $FE = 12$ units, $AF = 9$ units, and $DE = 12$ units, find the length of the other two sides. Then, find the area of the irregular polygon.



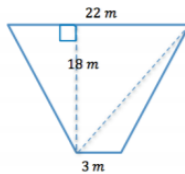
$CD = 8$ units, $BC = 21$ units, Area = 276 square units

2. If $DC = 1.9$ cm, $FE = 5.6$ cm, $AF = 4.8$ cm, and $BC = 10.9$ cm, find the length of the other two sides. Then, find the area of the irregular polygon.



$AB = 7.5$ cm, $DE = 6.1$ cm, Area = 47.59 cm²

3. Determine the area of the trapezoid below. The trapezoid is not drawn to scale.



Area of Triangle 1

$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2} \times 22 \text{ m} \times 18 \text{ m}$$

$$A = 198 \text{ m}^2$$

Area of Triangle 2

$$A = \frac{1}{2}bh$$

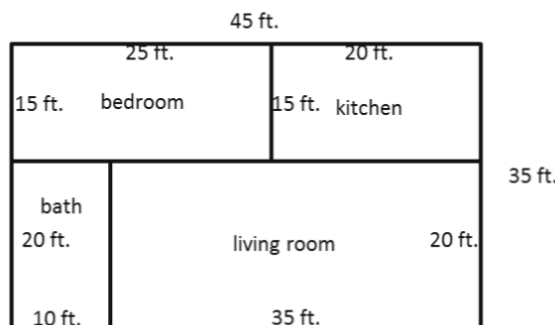
$$A = \frac{1}{2} \times 3 \text{ m} \times 18 \text{ m}$$

$$A = 27 \text{ m}^2$$

Area of Trapezoid = Area of Triangle 1 + Area of Triangle 2

$$\text{Area} = 198 \text{ m}^2 + 27 \text{ m}^2 = 225 \text{ m}^2$$

4. The figure below shows a floor plan of a new apartment. New carpeting has been ordered, which will cover the living room and bedroom but not the kitchen or bathroom. Determine the carpeted area by composing or decomposing in two different ways, and then explain why they are equivalent.



Answers will vary. Sample student responses are shown.

Bedroom: $15 \text{ ft.} \times 25 \text{ ft.} = 375 \text{ ft}^2$

Living room: $35 \text{ ft.} \times 20 \text{ ft.} = 700 \text{ ft}^2$

Sum of bedroom and living room: $375 \text{ ft}^2 + 700 \text{ ft}^2 = 1,075 \text{ ft}^2$

Alternatively, the whole apartment is $45 \text{ ft.} \times 35 \text{ ft.} = 1,575 \text{ ft}^2$.

Subtracting the kitchen and bath (300 ft^2 and 200 ft^2) still gives $1,075 \text{ ft}^2$.

The two areas are equivalent because they both represent the area of the living room and bedroom.