

## Area of Triangles and Trapezoids

(pages 428–431)

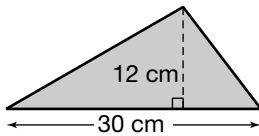
You can use the following formulas to find the area of triangles and trapezoids.

<b>Area of a Triangle</b>	The area ( $A$ ) of a triangle is equal to half of the product of its base ( $b$ ) and height ( $h$ ), or $A = \frac{1}{2}bh$ .
<b>Area of a Trapezoid</b>	The area ( $A$ ) of a trapezoid is equal to half the product of the height ( $h$ ) and the sum of the bases ( $a + b$ ), or $A = \frac{1}{2}h(a + b)$ .

### EXAMPLES

Find the area of each figure.

**A**



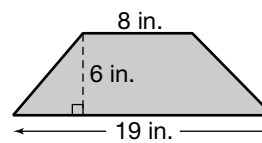
$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2} \times 30 \times 12$$

$$A = 15 \times 12$$

$$A = 180 \text{ cm}^2$$

**B**



$$A = \frac{1}{2}h(a + b)$$

$$A = \frac{1}{2}(6)(8 + 19)$$

$$A = (3)(27)$$

$$A = 81 \text{ in}^2$$

### Try These Together

Find the area of each triangle or trapezoid to the nearest tenth.

1. base: 4 in.  
height: 9 in.

*HINT: Substitute values carefully.*

2. bases: 8 cm, 2 cm  
height: 14 cm

*HINT: Do not forget to add the bases.*

### PRACTICE

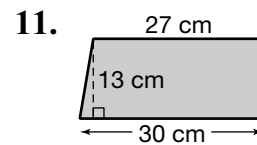
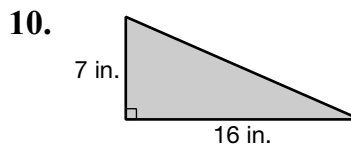
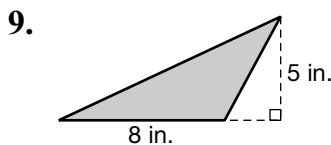
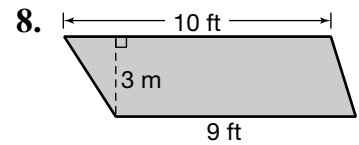
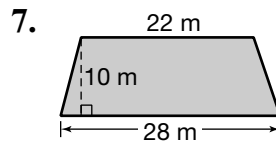
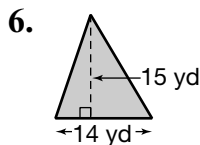
Find the area of each triangle or trapezoid to the nearest tenth.

3. base: 1.2 cm  
height: 1.8 cm

4. base: 23 yd  
height: 8 yd

5. bases: 5 ft, 13 ft  
height: 9 ft

Find the area of each figure to the nearest tenth.



12. **Standardized Test Practice** What is the area of a trapezoid with bases of 9 centimeters and 11 centimeters and a height of 4 centimeters?

**A**  $40 \text{ cm}^2$

**B**  $80 \text{ cm}^2$

**C**  $160 \text{ cm}^2$

**D**  $396 \text{ cm}^2$

<b>Answers:</b> 1. $18 \text{ in}^2$ 2. $70 \text{ cm}^2$ 3. $1.1 \text{ cm}^2$ 4. $92 \text{ yd}^2$ 5. $81 \text{ ft}^2$ 6. $105 \text{ yd}^2$ 7. $250 \text{ m}^2$ 8. $28.5 \text{ ft}^2$ 9. $20 \text{ in}^2$ 10. $56 \text{ in}^2$ 11. $370.5 \text{ cm}^2$ 12. <b>A</b>
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