

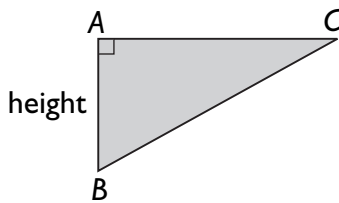
Chapter  
**6**

# Area of a Triangle

## Practice 1 Base and Height of a Triangle

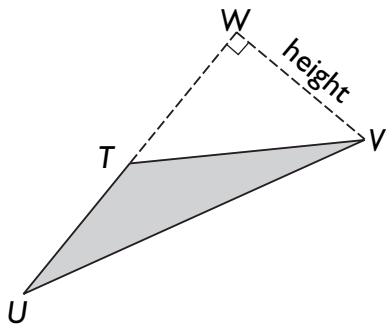
Complete to give both the base and the height in each triangle.

Example



Height: BA  
Base: AC

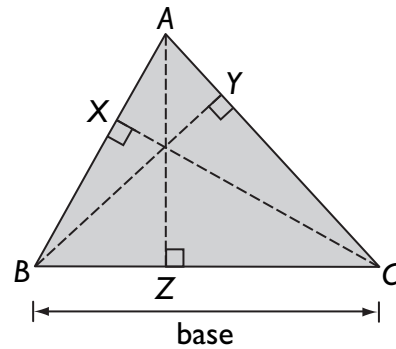
1.



Height: \_\_\_\_\_

Base: \_\_\_\_\_

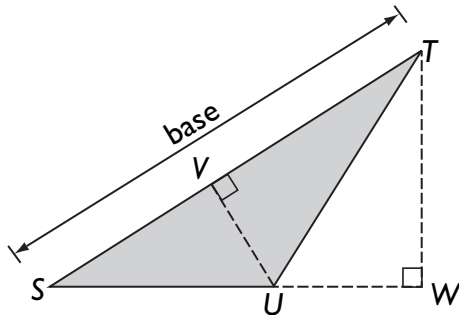
2.



Base: \_\_\_\_\_

Height: \_\_\_\_\_

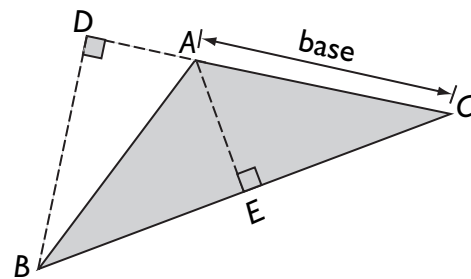
3.



Base: \_\_\_\_\_

Height: \_\_\_\_\_

4.

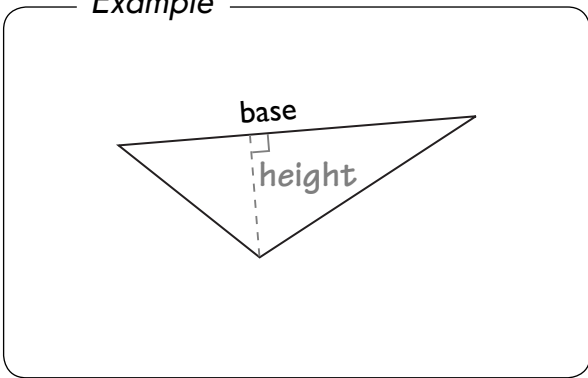


Base: \_\_\_\_\_

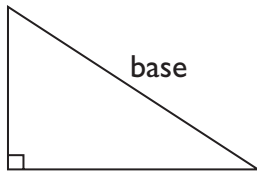
Height: \_\_\_\_\_

**For each triangle, the base is given. Label the height.  
Use a drawing triangle to draw the height.**

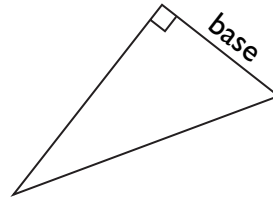
*Example*



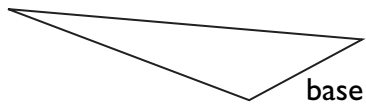
**5.**



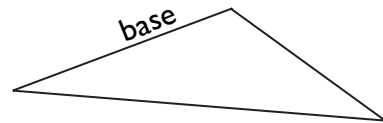
**6.**



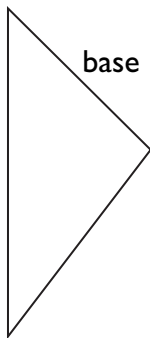
**7.**



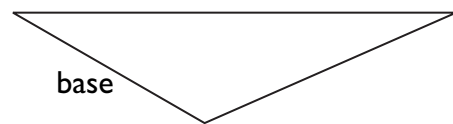
**8.**



**9.**



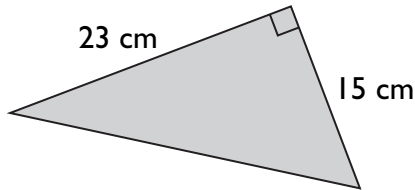
**10.**



## Practice 2 Finding the Area of a Triangle

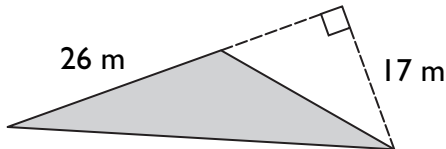
Find the area of each shaded triangle. Show each step and give your answer using the correct units.

*Example*

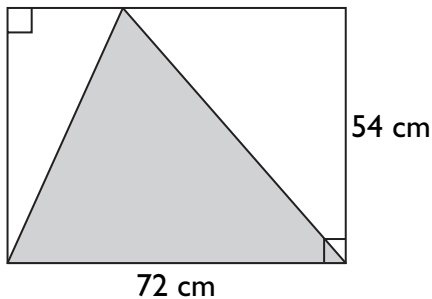


$$\begin{aligned} \text{Area of triangle} &= \frac{1}{2} \times 23 \times 15 \\ &= \underline{\underline{172\frac{1}{2} \text{ cm}^2}} \end{aligned}$$

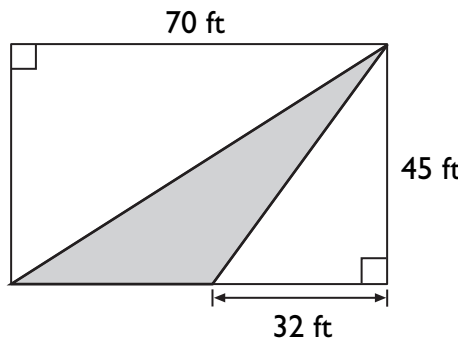
1.



2.

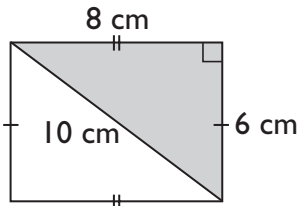


3.



**Find the area of each shaded triangle.**

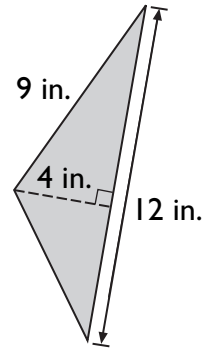
*Example*



$$\text{Area} = \frac{1}{2} \times 8 \times 6$$

$$= 24 \text{ cm}^2$$

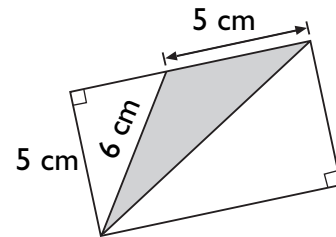
**4.**



Area = \_\_\_\_\_

= \_\_\_\_\_

**6.**

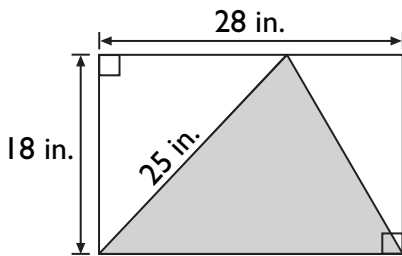


Area = \_\_\_\_\_

= \_\_\_\_\_

\_\_\_\_\_

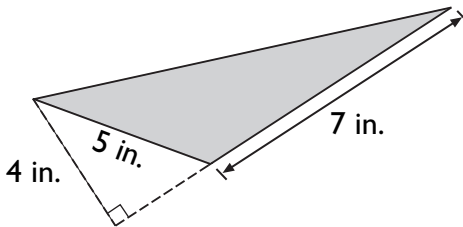
**5.**



Area = \_\_\_\_\_

= \_\_\_\_\_

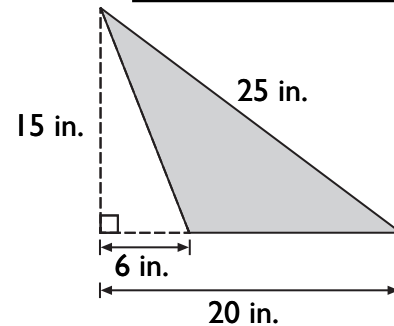
**7.**



Area = \_\_\_\_\_

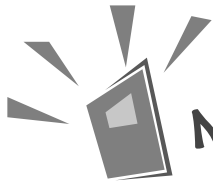
= \_\_\_\_\_

**8.**



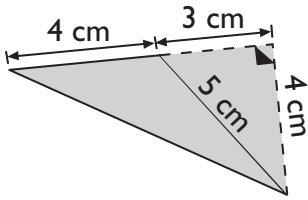
Area = \_\_\_\_\_

= \_\_\_\_\_



# Math Journal

1. Four students found the area of the shaded triangle.



These are their findings.

Zach:  $4 \times 4 = 16 \text{ cm}^2$

Preeti:  $\frac{1}{2} \times 5 \times 4 = 10 \text{ cm}^2$

Brian:  $\frac{1}{2} \times 7 \times 4 = 14 \text{ cm}^2$

James:  $\frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$

Explain the mistakes they have made. Then write the correct answer.

Zach: \_\_\_\_\_

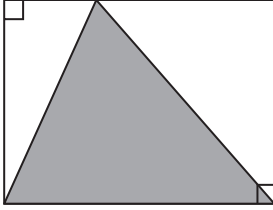
Preeti: \_\_\_\_\_

Brian: \_\_\_\_\_

James: \_\_\_\_\_

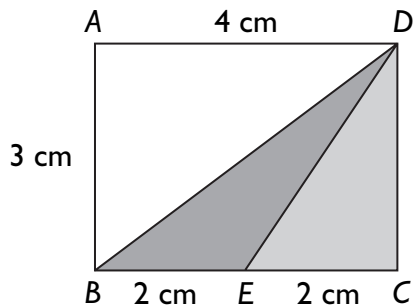
The area of the shaded triangle is: \_\_\_\_\_

2.



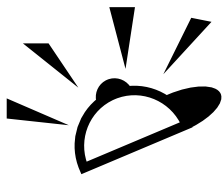
The area of the shaded triangle is  $15 \text{ cm}^2$ .  
Explain why the area of the rectangle is  $30 \text{ cm}^2$ .

3.  $ABCD$  is a rectangle and  $BE = EC$ .



What can you say about the areas of triangles  $BED$  and  $ECD$ ?

Explain your answer.



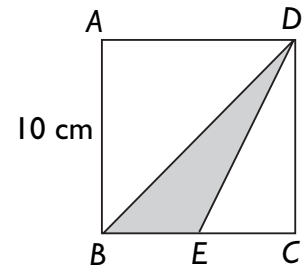
# Put On Your Thinking Cap!



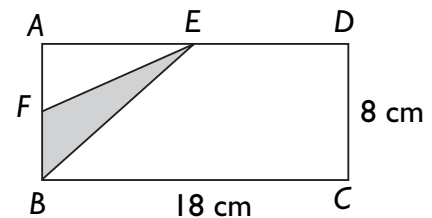
## Challenging Practice

**Solve. Show your work.**

1.  $ABCD$  is a square of side 10 cm and  $BE = EC$ . Find the area of the shaded triangle.

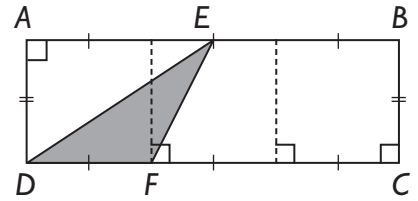


2.  $ABCD$  is a rectangle 18 cm by 8 cm.  $AE = ED$  and  $AF = FB$ . Find the area of the shaded triangle.



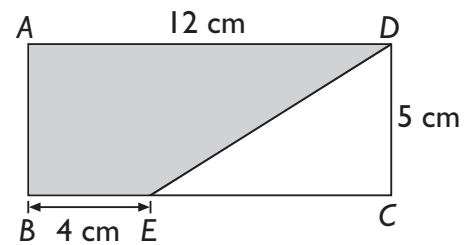
- 3.**  $ABCD$  is a rectangle of area 48 square inches. The length of  $CD$  is 3 times the length of  $DF$ .  $BC = 4$  in.

**a.** Find the length of  $DF$ .



**b.** Find the area of the shaded triangle.

- 4.**  $ABCD$  is a rectangle 12 cm by 5 cm.  $BE = 4$  cm. Find the area of the shaded region,  $ABED$ .

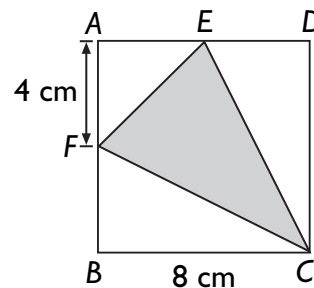




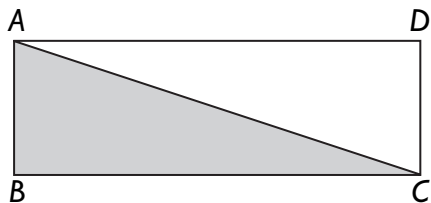
Name: \_\_\_\_\_

Date: \_\_\_\_\_

5. The side of square  $ABCD$  is 8 cm.  $AE = AF = 4$  cm.  
Find the area of the shaded triangle,  $CEF$ .

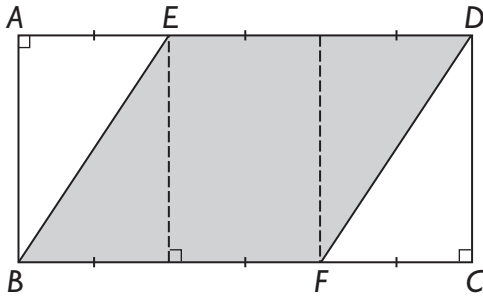


6. The perimeter of rectangle  $ABCD$  is 256 inches. Its length is 3 times as long as its width. Find the area of triangle  $ABC$ .

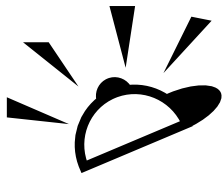


- 7.**  $ABCD$  is a rectangle of area 72 square centimeters.  
The length of  $AD$  is 3 times the length of  $AE$ .  
 $BF = 8$  cm.

- a.** Find the width of the rectangle.



- b.** Find the area of the shaded region,  $EBFD$ .



# Put On Your Thinking Cap!

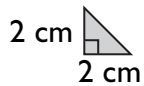


## Problem Solving

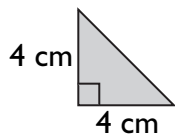
1.



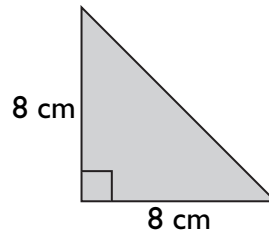
Look at the pattern of these triangles.



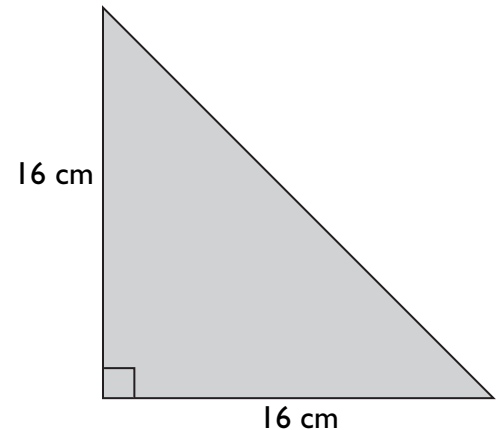
Triangle 1



Triangle 2



Triangle 3



Triangle 4

What is the area of Triangle 5 in the pattern? \_\_\_\_\_

Which triangle in the pattern will have an area of  $32,768 \text{ cm}^2$ ? \_\_\_\_\_

2.  $ABCD$  is a square with sides of 20 cm.  $AX = XB$ ,  $BY = YC$ ,  $CZ = ZD$ ,  $AW = WD$ .  $WY$  and  $XZ$  are straight lines. Find the total area of the shaded parts.

