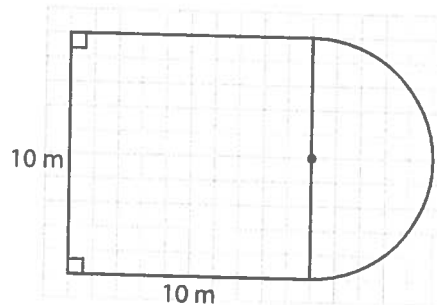
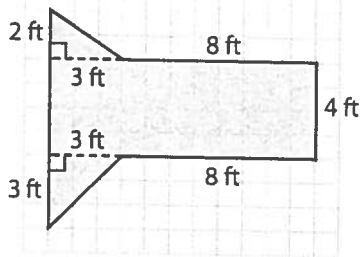


# Area of Composite Figures

Q. How do you find the area of composite figures?

A.            the figure into            nonoverlapping figures. Find the area of            figure, and then            the areas together to find the            area of the composite figure.

	Shape	Area Formula
1	triangle	$A = \frac{1}{2}bh$
2	square	$A = s^2$
3	rectangle	$A = \ell w$
4	parallelogram	$A = bh$
5	trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$



How many simpler shapes?             
Which formulas do you need to use? (#)           

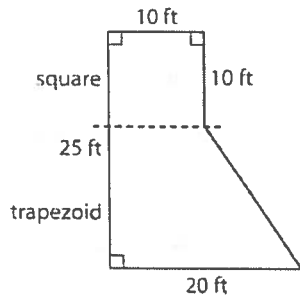
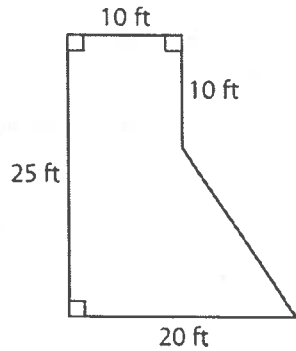
Find the area of each simpler figure           

Add them

**LESSON**  
**9-4**

**Area of Composite Figures**

*Reading Strategies: Make Connections*



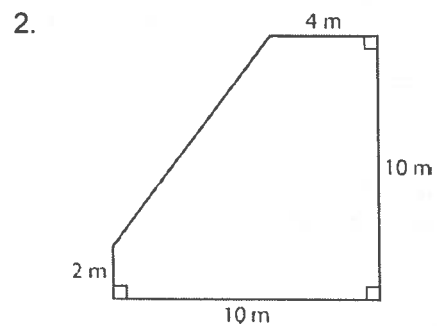
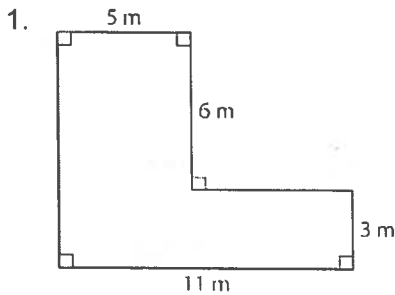
Shape	Area Formula
Triangle	$A = \frac{1}{2}bh$
Square	$A = s^2$
Rectangle	$A = lw$
Parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
Circle	$A = \pi r^2$

square =  $s^2 = 10^2 = 100 \text{ ft}^2$

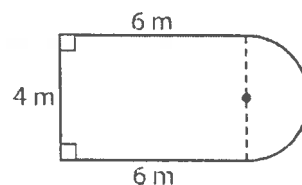
trapezoid =  $\frac{1}{2} \cdot 25(10 + 20) = 12.5(30) = 375 \text{ ft}^2$

square + trapezoid =  $100 + 375 = 475 \text{ ft}^2$

Find the area of each figure. Use 3.14 for  $\pi$ .



3. The figure shows the dimensions of a room. How much carpet is needed to cover the floor of the room?



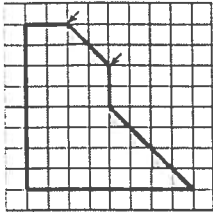
**LESSON**  
**9-4**

**Area of Composite Figures**

*Success for English Learners*

**Problem 1**

Find the area.



**Think!**  
Count the two kinds of squares and add.

**Step 1:** Count the number of whole squares: 35

**Step 2:** Count the number of half squares: 6

**Think!**  
Make the half-filled squares full.

**Step 3:**  $6 \div 2 = 3$

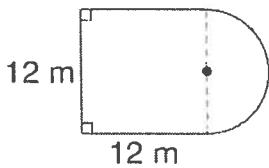
**Think!**  
Add to find the area.

**Step 4:**  $35 + 3 = 38$

So, the area is 38 square units.

**Problem 2**

Find the area.



**Think!**  
Find familiar figures. Then use the formulas for areas.

**Figure 1 = square**

**Area of square:  $A = s^2$**

$s = 12$

$s^2 = 12^2 = 144$

$A = 144 \text{ m}^2$

Total area  $\approx 144 + 56.52 \approx A \approx 200.52 \text{ m}^2$

1. How can you find the area of composite figures?

**Figure 2 is a semicircle**

**Area of semicircle:**

$A = \frac{1}{2}(\pi r^2)$

Use 3.14 for  $\pi$ .

$r = 6$  so  $r^2 = 36$

$A \approx \frac{1}{2}(3.14 \cdot 36)$       **Substitute.**

$A \approx \frac{1}{2}(113.04)$       **Multiply.**

$A \approx 56.52 \text{ m}^2$       **Multiply by  $\frac{1}{2}$ .**

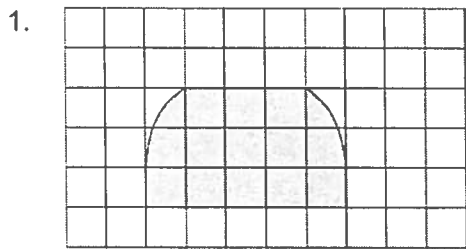
**Think!**  
The radius is  $\frac{1}{2}(12)$ .

**LESSON**  
**9-4**

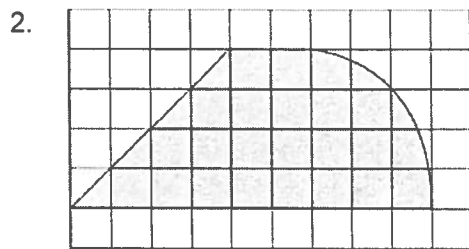
# Area of Composite Figures

## Practice and Problem Solving: D

Estimate the area of each figure. Each square represents 1 square foot. Choose the letter for the best answer. The first one is done for you.

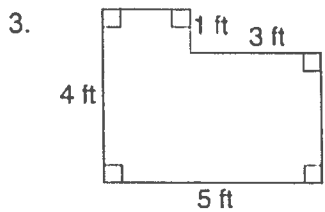


- A  $10 \text{ ft}^2$                       C  $14 \text{ ft}^2$   
B  $11 \text{ ft}^2$                       D  $15 \text{ ft}^2$

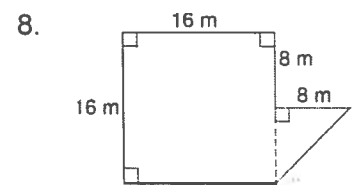
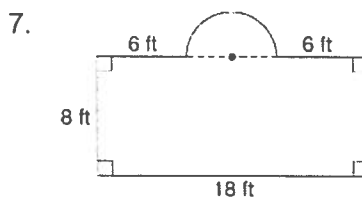
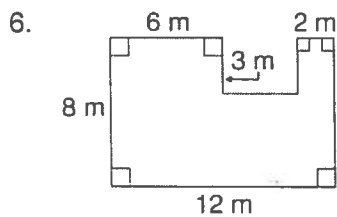
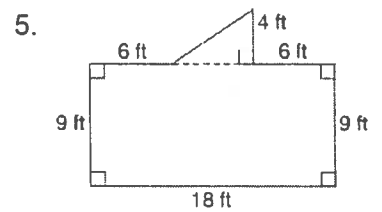
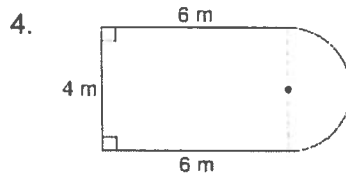


- A  $24 \text{ ft}^2$                       C  $32 \text{ ft}^2$   
B  $26 \text{ ft}^2$                       D  $36 \text{ ft}^2$

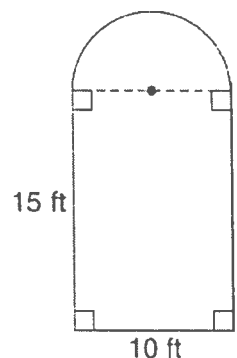
Find the area of each figure. Use 3.14 for  $\pi$ . The first one is done for you.



$17 \text{ ft}^2$



9. The figure shows the dimensions of a room. How much carpet is needed to cover its floor?

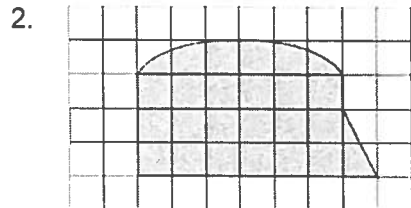
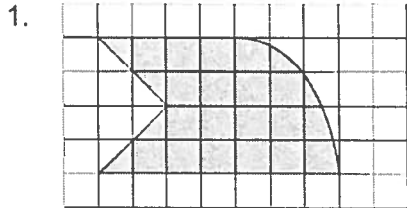


**LESSON**  
**9-4**

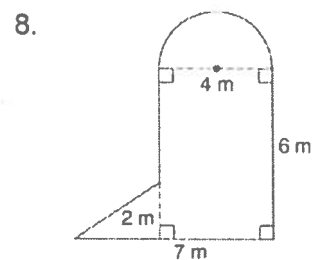
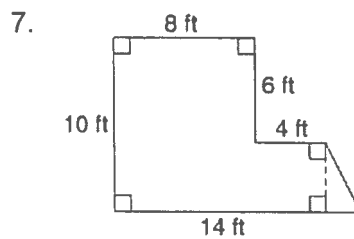
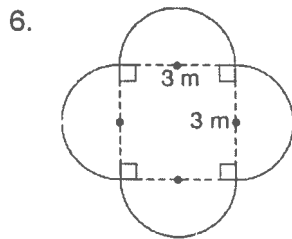
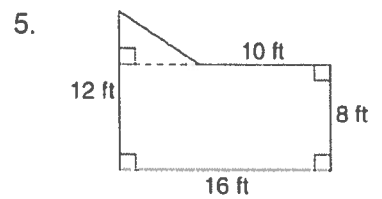
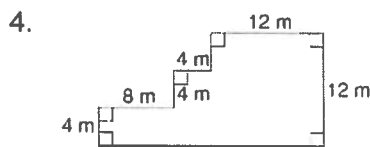
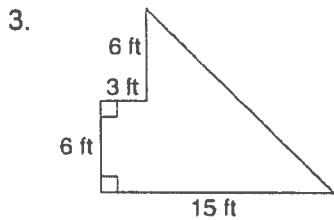
**Area of Composite Figures**

*Practice and Problem Solving: A/B*

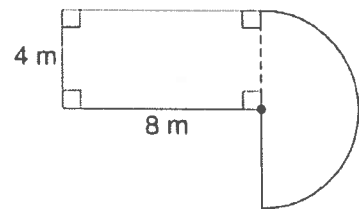
Estimate the area of each figure. Each square represents 1 square foot.



Find the area of each figure. Use 3.14 for  $\pi$ .



9. Marci is going to use tile to cover her terrace. How much tile does she need?



# Area of Composite Figures

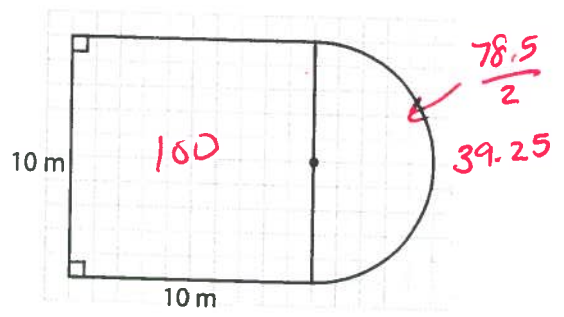
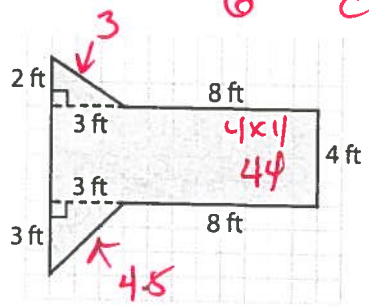
Q. How do you find the area of composite figures?

A. Divide the figure into simpler nonoverlapping figures. Find the area of each simpler figure, and then add the areas together to find the total area of the composite figure.

	Shape	Area Formula
1	triangle	$A = \frac{1}{2}bh$
2	square	$A = s^2$
3	rectangle	$A = \ell w$
4	parallelogram	$A = bh$
5	trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$

6 Circle

$A = \pi r^2$



How many simpler shapes? 3  
Which formulas do you need to use? (#)  
1 + 3

2  
2 + 6

Find the area of each simpler figure  
44 + 3 + 4.5

100 + 39.25

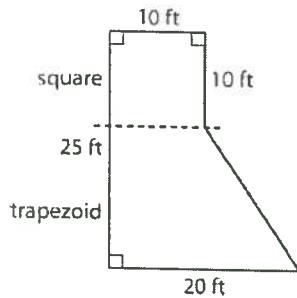
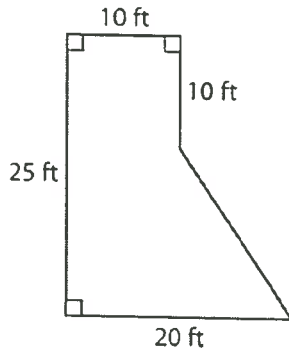
Add them  
51.5 ft<sup>2</sup>

139.25 m<sup>2</sup>

**LESSON**  
**9-4**

**Area of Composite Figures**

*Reading Strategies: Make Connections*



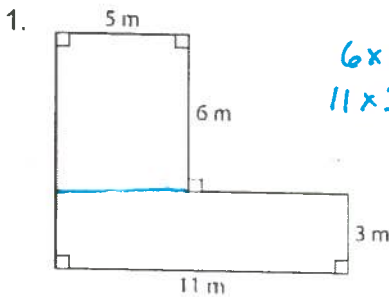
Shape	Area Formula
Triangle	$A = \frac{1}{2}bh$
Square	$A = s^2$
Rectangle	$A = lw$
Parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
Circle	$A = \pi r^2$

square =  $s^2 = 10^2 = 100 \text{ ft}^2$

trapezoid =  $\frac{1}{2} \cdot 15(10 + 20) = 7.5(30) = 225 \text{ ft}^2$

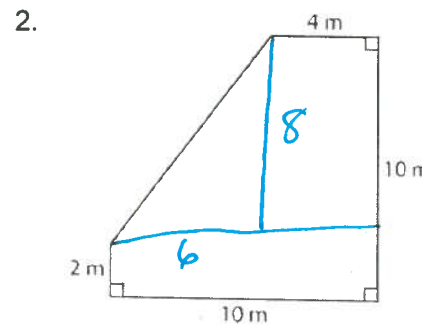
square + trapezoid =  $100 + 225 = 325 \text{ ft}^2$

Find the area of each figure. Use 3.14 for  $\pi$ .



$6 \times 5 = 30 \text{ m}^2$   
 $11 \times 3 = 33 \text{ m}^2$

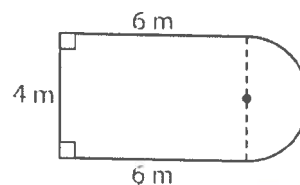
$63 \text{ m}^2$



$2 \times 10 = 20 \text{ m}^2$   
 $8 \times 4 = 32 \text{ m}^2$   
 $\frac{1}{2} \times 8 \times 6 = 24 \text{ m}^2$

$20 + 32 + 24 = 76 \text{ m}^2$

3. The figure shows the dimensions of a room. How much carpet is needed to cover the floor of the room?



$6 \times 4 = 24 \text{ m}^2$   
 $\pi(4)^2 \cdot \frac{3.14}{4}$

$24 + 6.28 = 30.28 \text{ m}^2$

$12.56 \div 2 = 6.28$

$$\begin{array}{r} 12.56 \\ 24 \\ \hline 36.56 \end{array}$$

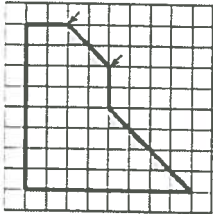
**LESSON**  
**9-4**

**Area of Composite Figures**

*Success for English Learners*

**Problem 1**

Find the area.



**Think!**  
Count the two kinds of squares and add.

**Step 1:** Count the number of whole squares: 35

**Step 2:** Count the number of half squares: 6

**Think!**  
Make the half-filled squares full.

**Step 3:**  $6 \div 2 = 3$

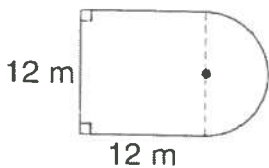
**Think!**  
Add to find the area.

**Step 4:**  $35 + 3 = 38$

So, the area is 38 square units.

**Problem 2**

Find the area.



**Think!**  
Find familiar figures. Then use the formulas for areas.

**Figure 1 = square**

**Area of square:  $A = s^2$**

$s = 12$

$s^2 = 12^2 = 144$

$A = 144 \text{ m}^2$

Total area  $\approx 144 + 56.52 \approx A \approx 200.52 \text{ m}^2$

**Figure 2 is a semicircle**

**Area of semicircle:**

$A = \frac{1}{2}(\pi r^2)$

Use 3.14 for  $\pi$ .

$r = 6$  so  $r^2 = 36$

$A \approx \frac{1}{2}(3.14 \cdot 36)$       **Substitute.**

$A \approx \frac{1}{2}(113.04)$       **Multiply.**

$A \approx 56.52 \text{ m}^2$       **Multiply by  $\frac{1}{2}$ .**

**Think!**  
The radius is  $\frac{1}{2}(12)$ .

1. How can you find the area of composite figures?

Separate to figures that you can find the area for



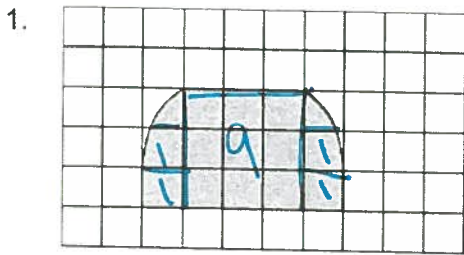
**LESSON**  
9-4

**Area of Composite Figures**

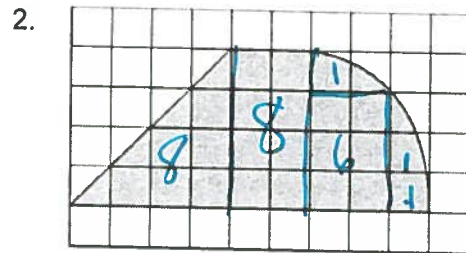
**Practice and Problem Solving: D**

Estimate the area of each figure. Each square represents 1 square foot. Choose the letter for the best answer. The first one is done for you.

$8+8+6 = 22+3 = 25$

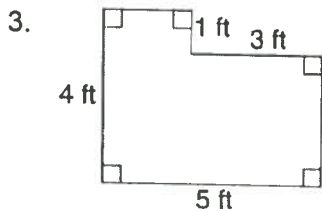


- A 10 ft<sup>2</sup>                      C 14 ft<sup>2</sup>  
B 11 ft<sup>2</sup>                      D 15 ft<sup>2</sup>

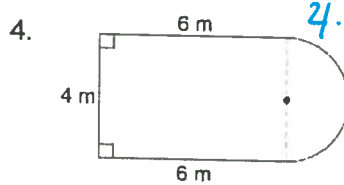


- A 24 ft<sup>2</sup>                      C 32 ft<sup>2</sup>  
B 26 ft<sup>2</sup>                      D 36 ft<sup>2</sup>

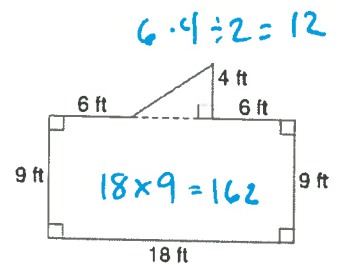
Find the area of each figure. Use 3.14 for  $\pi$ . The first one is done for you.



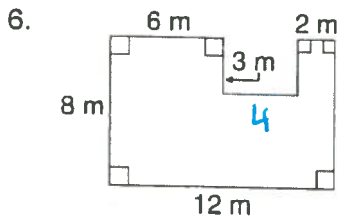
$17 \text{ ft}^2$



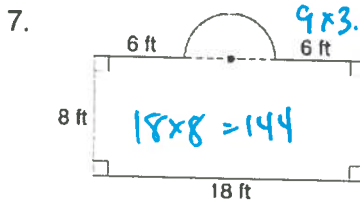
$6 \times 4 = 24 + 6 \cdot 3.14 \div 2 = 30.28 \text{ m}^2$



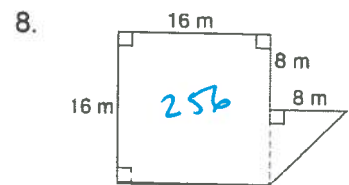
$6 \cdot 4 \div 2 = 12$   
 $18 \times 9 = 162$   
 $162 + 12 = 174 \text{ ft}^2$



$8 \times 12 = 96 - 12 = 84 \text{ m}^2$



$144 + 14.13 = 158.13 \text{ ft}^2$



$256 + 32 = 288 \text{ m}^2$

9. The figure shows the dimensions of a room. How much carpet is needed to cover its floor?

$250 + 39.25 = 289.25 \text{ ft}^2$

$\pi r^2$   
 $\pi (5)^2$   
 $25\pi$

