Interactive Classroom

Glencoe McGraw-Hill

Pre-Algebra

Chapter 10
Two-Dimensional Figures

Click the mouse button or press the space bar to continue.

Chapter Menu

Lesson Menu

Main Ideas

- Identify the relationships of angles formed by two parallel lines and a transversal.
- Identify the relationships of vertical, adjacent, complementary, and supplementary angles.

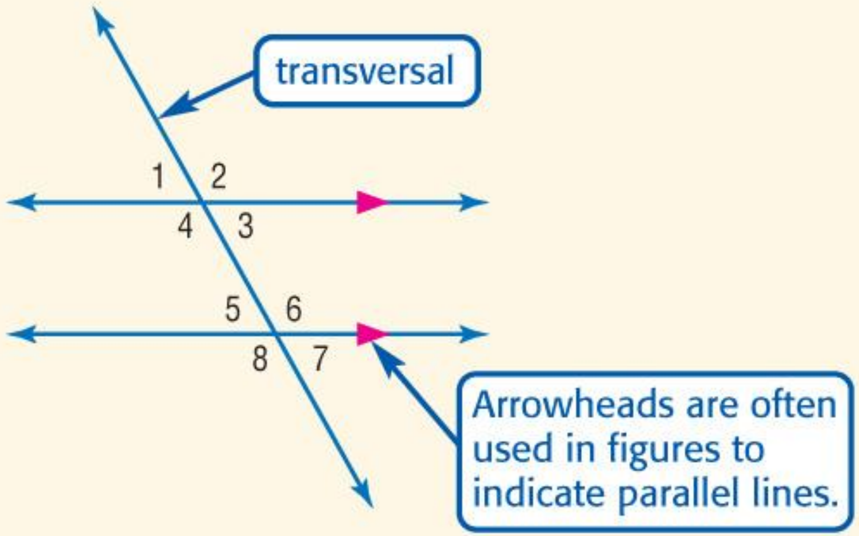
New Vocabulary

- parallel lines
- transversal
- interior angles
- exterior angles
- alternate interior angles
- alternate exterior angles
- corresponding angles
- vertical angles
- adjacent angles
- complementary angles
- supplementary angles
- perpendicular lines

KEY CONCEPT *Names of Special Angles*

The eight angles formed by parallel lines and a transversal have special names.

- **Interior angles** lie inside the parallel lines. ∠3, ∠4, ∠5, ∠6
- **Exterior angles** lie outside the parallel lines. ∠1, ∠2, ∠7, ∠8
- **Alternate interior angles** are on opposite sides of the transversal and inside the parallel lines. ∠3 and ∠5, ∠4 and ∠6



- **Alternate exterior angles** are on opposite sides of the transversal and outside the parallel lines. ∠1 and ∠7, ∠2 and ∠8
- **Corresponding angles** are in the same position on the parallel lines in relation to the transversal. ∠1 and ∠5, ∠2 and ∠6, ∠3 and ∠7, ∠4 and ∠8

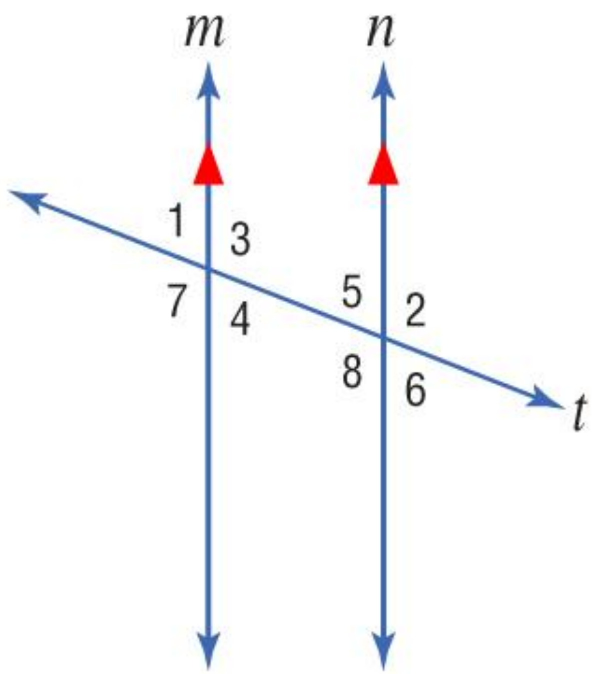
KEY CONCEPT — *Parallel Lines Cut by a Transversal*

If two parallel lines are cut by a transversal, then

- corresponding angles are congruent,
- alternate interior angles are congruent, and
- alternate exterior angles are congruent.

EXAMPLE Find Measures of Angles

1 **In the figure, *m* || *n* and *t* is a transversal. If $m\angle 7 = 123°$, find $m\angle 2$ and $m\angle 8$.**



Since ∠7 and ∠2 are alternate exterior angles, they are congruent. So, $m\angle 2 = 123°$.

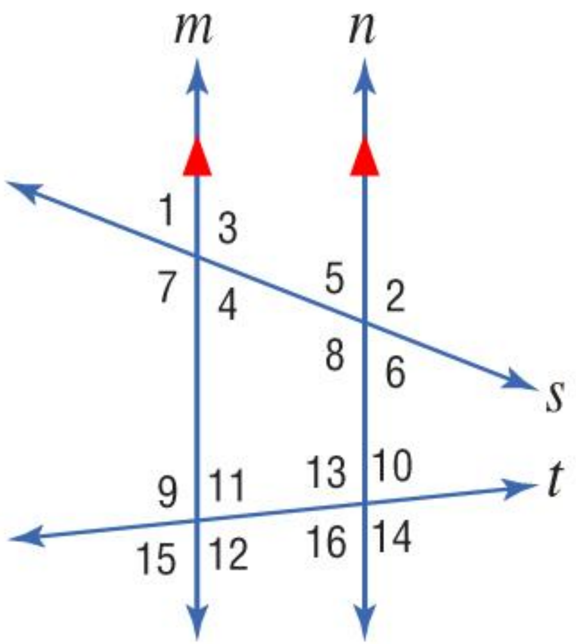
Answer: $m\angle 2 = 123°$

Since ∠7 and ∠8 are corresponding angles, they are congruent. So, $m\angle 8 = 123°$.

Answer: $m\angle 8 = 123°$

CHECK Your Progress

1 In the figure, $m \parallel n$ and t is a transversal. If $m\angle 4 = 57°$, find $m\angle 5$ and $m\angle 1$.

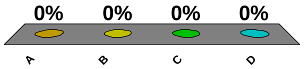


A. $m\angle 5 = 57°$; $m\angle 1 = 57°$

B. $m\angle 5 = 123°$; $m\angle 1 = 123°$

C. $m\angle 5 = 57°$; $m\angle 1 = 123°$

D. $m\angle 5 = 123°$; $m\angle 1 = 57°$



CheckPoint

Real-World EXAMPLE

2 **LEG LIFTS** **Kian does leg lifts each morning. For each repetition he lifts his legs 35 degrees off the ground. What is the measure of the angle formed by his body and legs in this position?**

The angles are supplementary.

$x + 35$	$= 180$	Write the equation.
$x + 35 - 35$	$= 180 - 35$	Subtract 35 from each side.
x	$= 145$	Simplify.

Answer: The angle formed by his body and legs is 145°.

Check Your Progress

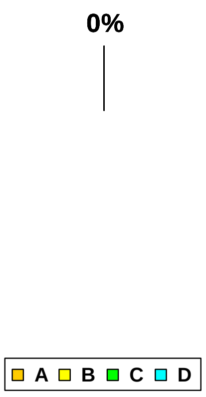
2 **SEWING** Linda cuts a piece of material from the corner at a 35° angle. What is the measure of the other angle formed by the cut?

A. 145°

B. 90°

C. 55°

D. 35°



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EXAMPLE Find Measures of Angles

3 **ALGEBRA** **Angles *PQR* and *STU* are supplementary. If $m\angle PQR = x - 15$ and $m\angle STU = x - 65$, find the measure of each angle.**

Step 1 Find the value of x.

$m\angle PQR + m\angle STU = 180°$		Supplementary angles
$(x - 15) + (x - 65) = 180°$		Substitution
$2x - 80 = 180°$		Combine like terms.
$2x = 260°$		Add 80 to each side.
$x = 130°$		Divide each side by 2.

EXAMPLE **Find Measures of Angles**

3 **Step 2** Replace x with 130 to find the measure of each angle.

$m\angle PQR = x - 15$
$= 130 - 15$ or 115

$m\angle STU = x - 65$
$= 130 - 65$ or 65

Answer: $m\angle PQR = 115°$
$m\angle STU = 65°$

CHECK Your Progress

3 **Angles *ABC* and *DEF* are complementary. If $m\angle ABC = x + 12$ and $m\angle DEF = 2x – 9$, find the measure of each angle.**

A. $m\angle ABC = 29°$; $m\angle DEF = 61°$

B. $m\angle ABC = 41°$; $m\angle DEF = 49°$

C. $m\angle ABC = 59°$; $m\angle DEF = 121°$

D. $m\angle ABC = 71°$; $m\angle DEF = 109°$

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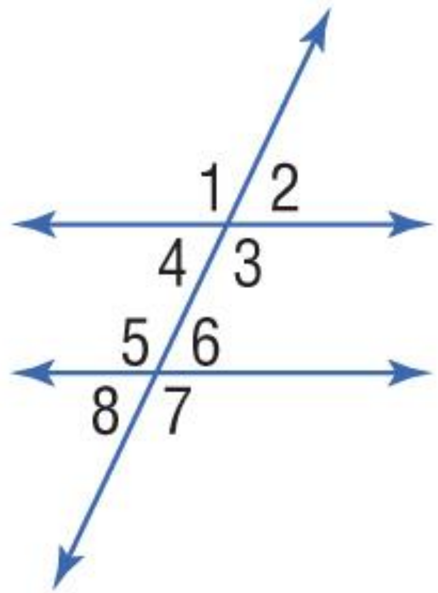
A B C D

CheckPoint

Real-World EXAMPLE

4 **TRANSPORTATION** **A road crosses railroad tracks at an angle as shown. If $m\angle 1 = 131°$, find $m\angle 6$ and $m\angle 5$.**



Since $\angle 1$ and $\angle 5$ are corresponding angles, they are congruent.

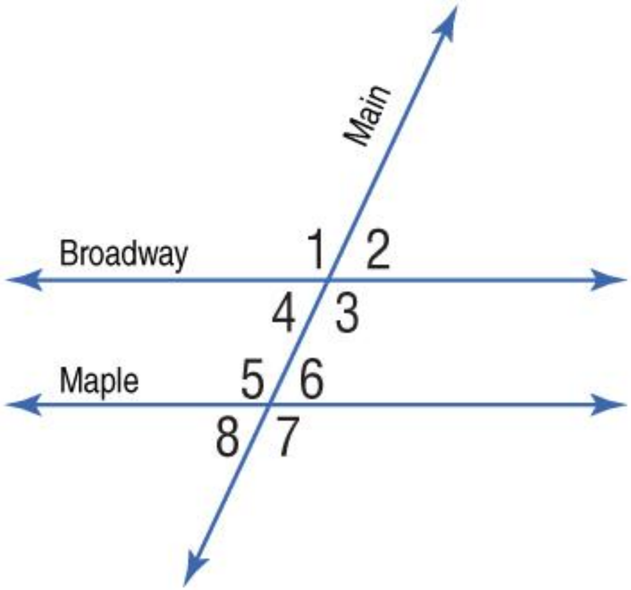
Answer: $m\angle 5 = 131°$

Since $\angle 5$ and $\angle 6$ are supplementary angles, the sum of their measures is 180°.
$180 - 131 = 49$

Answer: $m\angle 6 = 49°$

CHECK Your Progress

4 TRANSPORTATION Main Street crosses Broadway Boulevard and Maple Avenue at an angle as shown. If $m\angle 1 = 48°$, find $m\angle 3$ and $m\angle 4$.

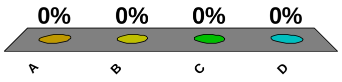


A. $m\angle 3 = 132°$; $m\angle 4 = 48°$

B. $m\angle 3 = 48°$; $m\angle 4 = 132°$

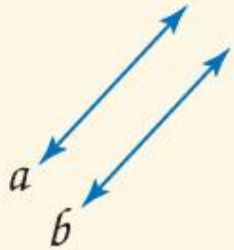
C. $m\angle 3 = 48°$; $m\angle 4 = 42°$

D. $m\angle 3 = 42°$; $m\angle 4 = 138°$



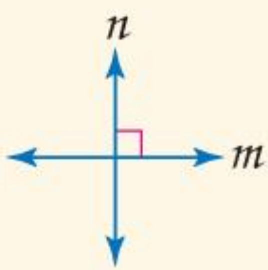
CONCEPT SUMMARY — *Line and Angle Relationships*

Parallel Lines



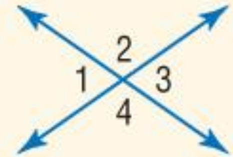
$a \parallel b$

Perpendicular Lines



$m \perp n$

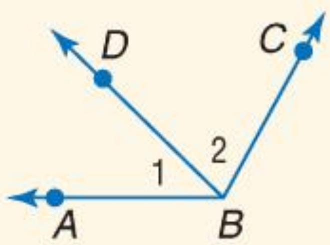
Vertical Angles



$\angle 1 \cong \angle 3$

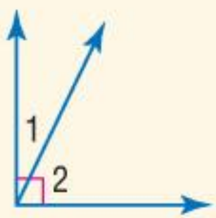
$\angle 2 \cong \angle 4$

Adjacent Angles



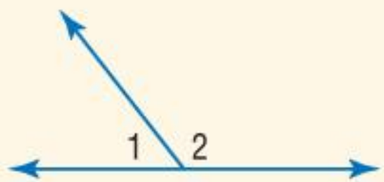
$m\angle ABC = m\angle 1 + m\angle 2$

Complementary Angles



$m\angle 1 + m\angle 2 = 90°$

Supplementary Angles



$m\angle + m\angle 2 = 180°$

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Five-Minute Check (over Lesson 10-1)

Main Idea and Vocabulary

Key Concept: Corresponding Parts of Congruent Triangles

Example 1: Name Corresponding Parts

Example 2: Identify Congruent Triangles

Example 3: Real-World Example

Main Idea

- Identify congruent triangles and corresponding parts of congruent triangles.

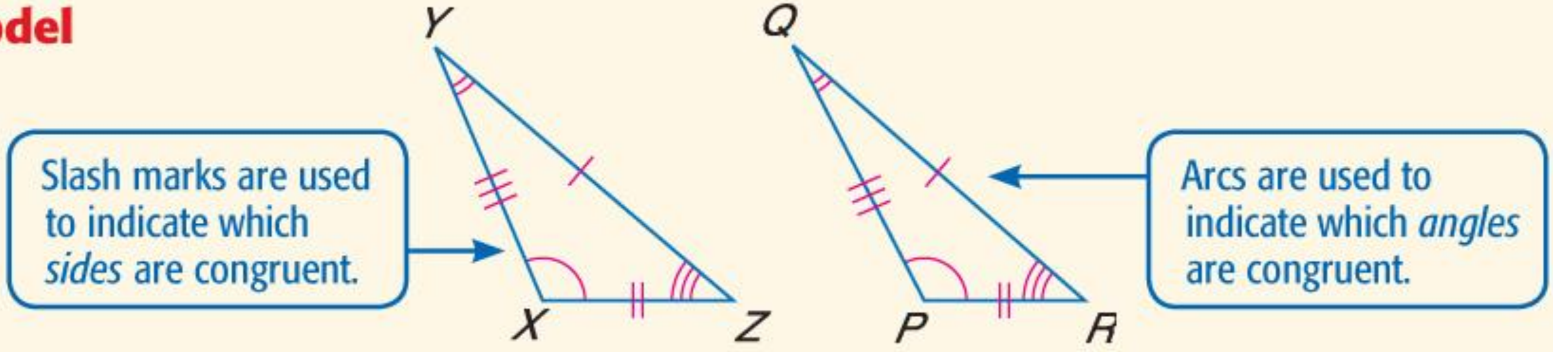
New Vocabulary

- congruent
- corresponding parts

KEY CONCEPT — Corresponding Parts of Congruent Triangles

Words If two triangles are congruent, their corresponding sides are congruent and their corresponding angles are congruent.

Model

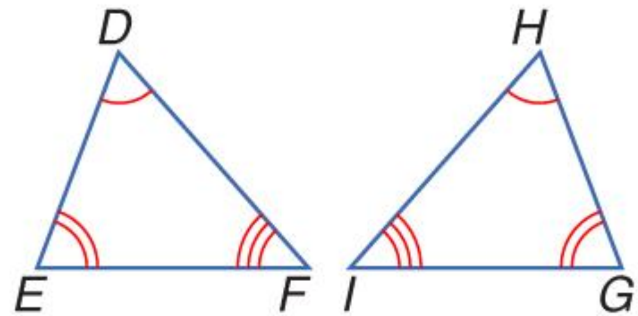


Symbols Congruent Angles: $\angle X \cong \angle P$, $\angle Y \cong \angle Q$, $\angle Z \cong \angle R$

Congruent Sides: $\overline{XY} \cong \overline{PQ}$, $\overline{YZ} \cong \overline{QR}$, $\overline{XZ} \cong \overline{PR}$

EXAMPLE Name Corresponding Parts

1 **Name the corresponding parts in the congruent triangles shown. Then complete the congruence statement.**



$\Delta HGI \cong ?$

Answer: Corresponding Angles

$\angle D \cong \angle H$, $\angle E \cong \angle G$, $\angle F \cong \angle I$

Corresponding SidesΔ

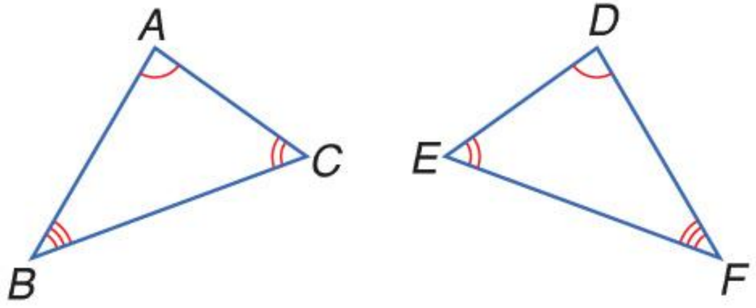
$\overline{DE} \cong \overline{HG}$, $\overline{DF} \cong \overline{HI}$, $\overline{EF} \cong \overline{GI}$

One congruence statement is

$\Delta HGI \cong \Delta DEF$

CHECK Your Progress

1 **Name the corresponding parts in the congruent triangles shown. Then complete the congruence statement.**

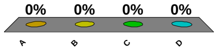


A. $\angle A \cong \angle D,\ \angle B \cong \angle E,\ \angle C \cong \angle F$
$\overline{AB} \cong \overline{DE},\ \overline{BC} \cong \overline{FE},\ \overline{AC} \cong \overline{DF}$
$\triangle ACB \cong \triangle DFE$

B. $\angle A \cong \angle D,\ \angle B \cong \angle F,\ \angle C \cong \angle E$
$\overline{AB} \cong \overline{DE},\ \overline{BC} \cong \overline{FE},\ \overline{AC} \cong \overline{DF}$
$\triangle ACB \cong \triangle DEF$

C. $\angle A \cong \angle D,\ \angle B \cong \angle F,\ \angle C \cong \angle E$
$\overline{AB} \cong \overline{DF},\ \overline{BC} \cong \overline{FE},\ \overline{CA} \cong \overline{ED}$
$\triangle ABC \cong \triangle DFE$

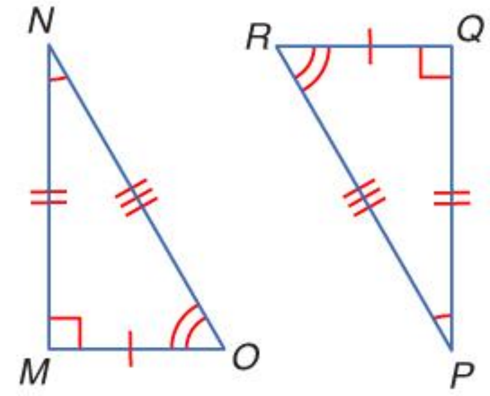
D. $\angle A \cong \angle D,\ \angle B \cong \angle F,\ \angle C \cong \angle E$
$\overline{AB} \cong \overline{EF},\ \overline{BC} \cong \overline{FD},\ \overline{AC} \cong \overline{DF}$
$\triangle ACB \cong \triangle DEF$



CheckPoint

EXAMPLE Identify Congruent Triangles

2 **Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.**



Explore The drawing shows which angles are congruent and which sides are congruent.

Plan Note which segments have the same length and which angles are congruent. Write corresponding vertices in the same order.

EXAMPLE Identify Congruent Triangles

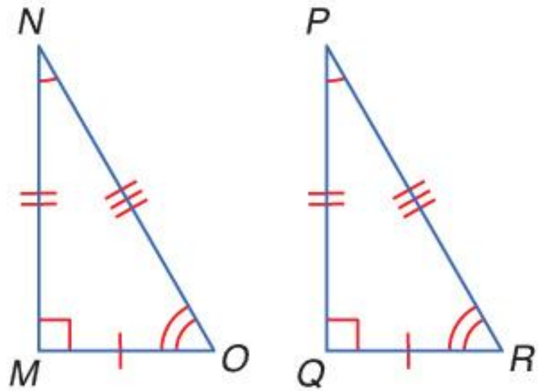
2 Solve

Angles: The arcs indicate that $\angle M \cong \angle Q$, $\angle N \cong \angle P$, and $\angle O \cong \angle R$.

Sides: The slash marks indicate that $\overline{MN} \cong \overline{QP}$, $\overline{NO} \cong \overline{PR}$, and $\overline{MO} \cong \overline{QR}$.

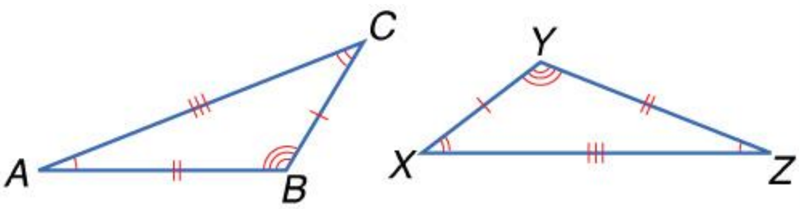
Answer: Since all pairs of corresponding angles and sides are congruent, the two triangles are congruent. One congruence statement is $\Delta MNO \cong \Delta QPR$.

Check: Draw ΔMNO and ΔQPR so that they are oriented in the same way. Then compare the angles and sides.



CHECK Your Progress

2 **Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.**



A. $\angle A \cong \angle X,\ \angle B \cong \angle Y,\ \angle C \cong \angle Z$

$\overline{AB} \cong \overline{XY},\ \overline{BC} \cong \overline{YZ},\ \overline{CA} \cong \overline{XZ}$

$\triangle ABC \cong \triangle XYZ$

B. $\angle A \cong \angle X,\ \angle B \cong \angle Z,\ \angle C \cong \angle Y$

$\overline{AB} \cong \overline{XZ},\ \overline{BC} \cong \overline{ZY},\ \overline{CA} \cong \overline{YX}$

$\triangle ACB \cong \triangle XZY$

C. $\angle A \cong \angle Z,\ \angle B \cong \angle Y,\ \angle C \cong \angle X$

$\overline{AB} \cong \overline{XY},\ \overline{BC} \cong \overline{YZ},\ \overline{CA} \cong \overline{XZ}$

$\triangle ABC \cong \triangle XYZ$

D. $\angle A \cong \angle Z,\ \angle B \cong \angle Y,\ \angle C \cong \angle X$

$\overline{AB} \cong \overline{ZY},\ \overline{BC} \cong \overline{YX},\ \overline{CA} \cong \overline{XZ}$

$\triangle ABC \cong \triangle ZYX$

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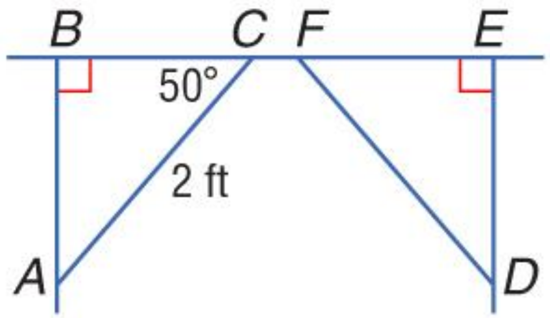
A B C D

CheckPoint

Real-World EXAMPLE

3 **A. CONSTRUCTION A brace is used to support a tabletop. In the figure, $\Delta ABC \cong \Delta DEF$. What is the measure of $\angle F$?**

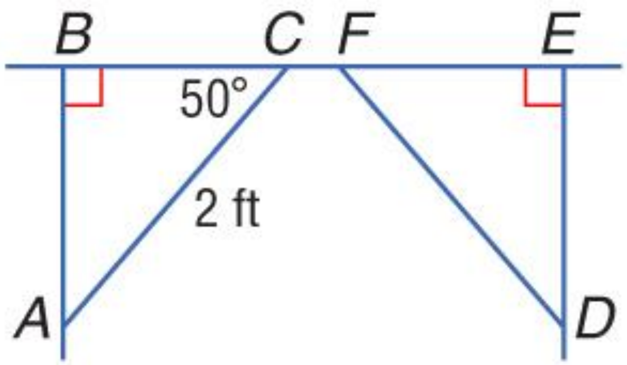


$\angle F$ and $\angle C$ are corresponding angles. So, they are congruent. Since $m\angle C = 50°$, $m\angle F = 50°$.

Answer: $m\angle F = 50°$

Real-World EXAMPLE

3 B. What is the length of $\overline{DF}$?

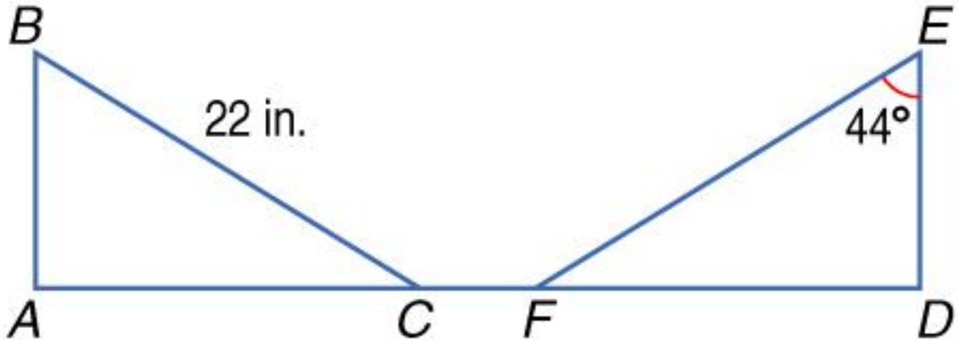


$\overline{DF}$ corresponds to $\overline{AC}$. So, $\overline{DF}$ and $\overline{AC}$ are congruent. Since AC = 2 feet, DF = 2 feet.

Answer: DF = 2 feet

CHECK Your Progress

3 **A. ART** In the figure, $\Delta ABC \cong \Delta DEF$. What is the measure of $\angle B$?



A. 44°

B. 46°

C. 90°

D. 136°

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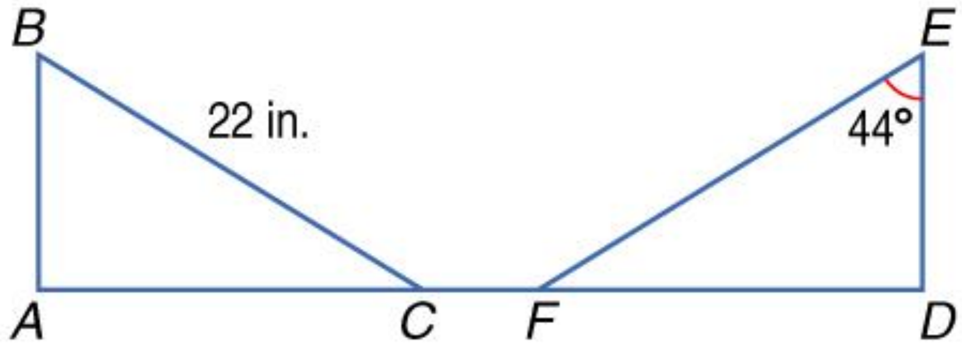
A B C D

CHECK Your Progress

3 **B. ART** In the figure, $\Delta ABC \cong \Delta DEF$. What is the length of $\overline{EF}$?



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A. 158 in.

B. 68 in.

C. 44 in.

D. 22 in.

A B C D

CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Idea

- Draw translations, reflections, and dilations on a coordinate plane.

New Vocabulary

- transformation
- image
- translation
- reflection
- line of symmetry
- dilation
- center

Standardized Test EXAMPLE

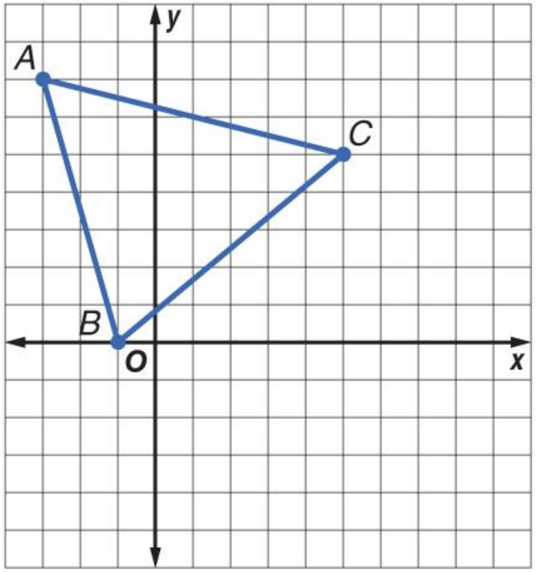
1 **Triangle *ABC* is shown on the coordinate plane. Find the coordinates of the vertices of the image of Δ*ABC* translated 4 units right and 5 units down.**

A *A'*(–7, 2), *B'*(–5, –5), *C'* (1, 0)

B *A'*(1, 12), *B'*(3, 5), *C'* (9, 10)

C *A'*(–7, 12), *B'*(–5, 5), *C'* (1, 10)

D *A'*(1, 2), *B'*(3, –5), *C'* (9, 0)



Standardized Test EXAMPLE

1 Read the Test Item

This translation can be written as the ordered pair (4, –5). To find the coordinates of the translated image, add 4 to each *x*-coordinate and add –5 to each *y*-coordinate.

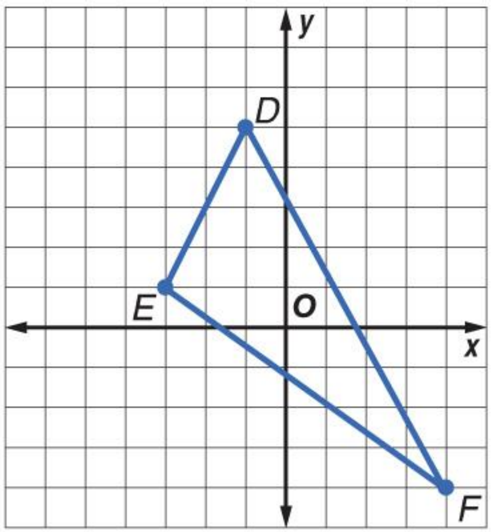
Solve the Test Item

vertex		4 right, 5 down		translation
$A(-3, 7)$	+	$(4, -5)$	→	$A'(1, 2)$
$B(-1, 0)$	+	$(4, -5)$	→	$B'(3, -5)$
$C(5, 5)$	+	$(4, -5)$	→	$C'(9, 0)$

Answer: D

CHECK Your Progress

1 Triangle *DEF* is shown on the coordinate plane. Find the coordinates of the vertices of the image of Δ*DEF* translated 3 units right and 2 units down.

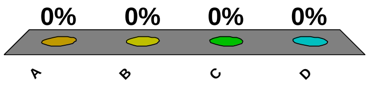


A. *D'* (–4, 3), *E'* (–6, –1), *F'* (1, –6)

B. *D'* (2, 3), *E'* (0, –1), *F'* (7, –6)

C. *D'* (–4, 7), *E'* (–6, 3), *F'* (1, –2)

D. *D'* (2, 7), *E'* (0, 3), *F'* (7, –2)



EXAMPLE Reflections in a Coordinate Plane

2 **The vertices of a figure are *M*(–8, 6), *N*(5, 9), *O*(2, 1), and *P*(–10, 3). Graph the figure and the image of the figure after a reflection over the *y*-axis.**

To find the coordinates of the vertices of the image after a reflection over the *y*-axis, multiply the *x*-coordinate by –1 and use the same *y*-coordinate.

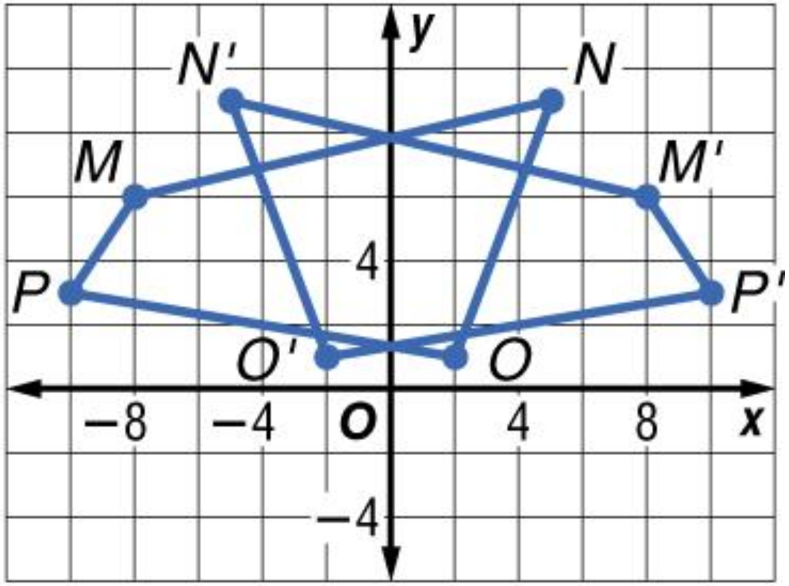
opposite

same

$M(-8, 6)$	$\rightarrow$	$(-1 \bullet (-8), 6)$	$\rightarrow$	$M'(8, 6)$
$N(5, 9)$	$\rightarrow$	$(-1 \bullet 5, 9)$	$\rightarrow$	$N'(-5, 9)$
$O(2, 1)$	$\rightarrow$	$(-1 \bullet 2, 1)$	$\rightarrow$	$O'(-2, 1)$
$P(-10, 3)$	$\rightarrow$	$(-1 \bullet (-10), 3)$	$\rightarrow$	$P'(10, 3)$

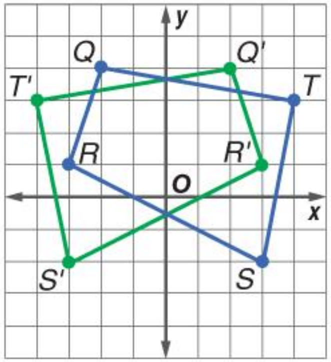
EXAMPLE Reflections in a Coordinate Plane

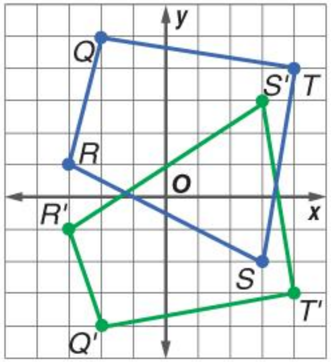
2 Answer:

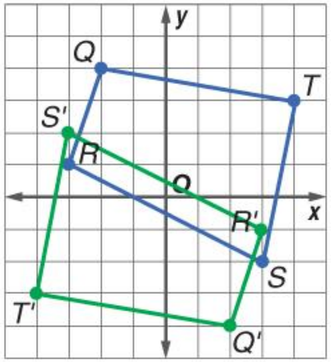


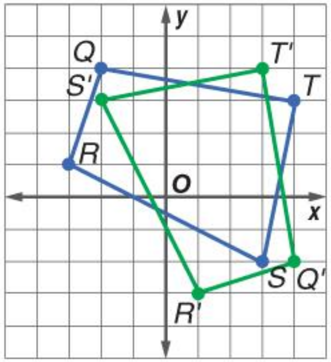
CHECK Your Progress

2 The vertices of a figure are *Q*(–2, 4), *R*(–3, 1), *S*(3, –2), and *T*(4, 3). Graph the figure and the image of the figure after a reflection over the *y*-axis.

A.


B.


C.


D.


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A B C D

EXAMPLE Dilation in a Coordinate Plane

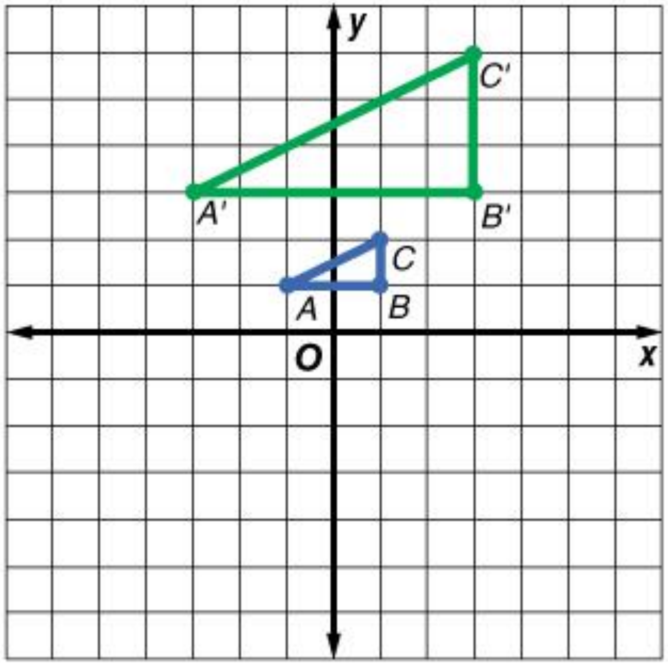
3 **A polygon has vertices *A*(–1, 1), *B*(1, 1), and *C*(1, 2). Graph the polygon and the image of the polygon after a dilation centered at the origin with a scale factor of 3.**

To dilate the polygon, multiply the coordinates of each vertex by 3.

A(–1, 1)	→	*A'*(–3, 3)
B(1, 1)	→	*B'*(3, 3)
C(1, 2)	→	*C'*(3, 6)

EXAMPLE **Dilation in a Coordinate Plane**

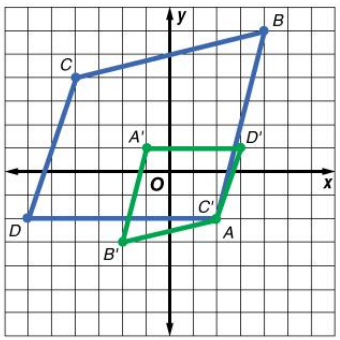
3 **Answer:**



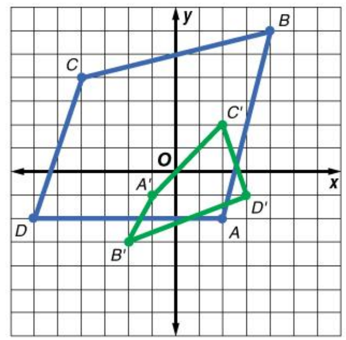
CHECK Your Progress

3 A figure has vertices *A*(2, –2), *B*(4, 6), *C*(–4, 4), and *D*(–6, –2). Graph the figure and the image of the figure after a dilation centered at the origin with a scale factor of $\frac{1}{2}$.

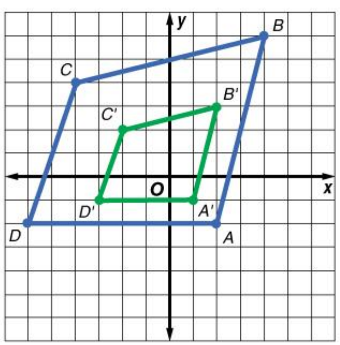
A.



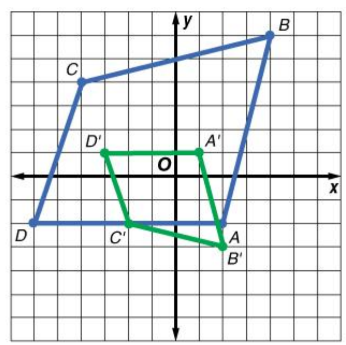
B.



C.



D.



0%

A B C D

CheckPoint

CONCEPT SUMMARY — *Transformations*

Translations and **Reflections** produce images that are the same shape and the same size. The figures are congruent to the images.

Dilations produce images that are similar (same shape, but *not* the same size). The figures are *not* congruent to the images, except when the scale factor $k = 1$.

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find the missing angle measures of a quadrilateral.
- Classify quadrilaterals.

New Vocabulary

- quadrilateral

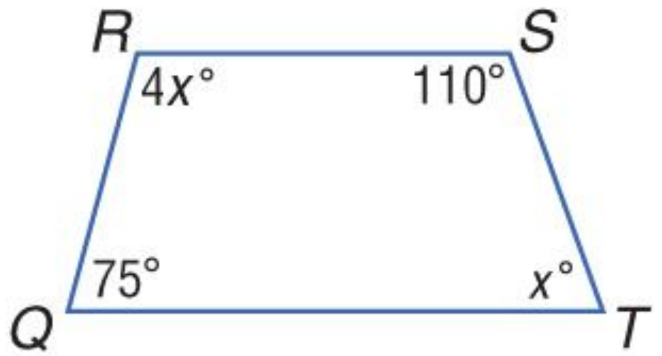
KEY CONCEPT Angels of a Quadrilateral

The sum of the measures of the angles of a quadrilateral is 360°.

Concepts in Motion
Animation:
Classify Quadrilaterals
Click here to view!

EXAMPLE Find Angle Measures

1 ALGEBRA Find the value of *x*. Then find each missing angle measure.



The sum of the measures of the angles is 360°.

Let $m\angle Q$, $m\angle R$, $m\angle S$, and $m\angle T$ represent the measures of the angles.

EXAMPLE **Find Angle Measures**

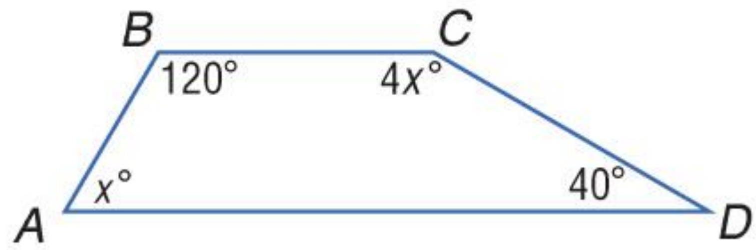
1

$m\angle Q + m\angle R + m\angle S + m\angle T = 360$		Angles of a quadrilateral
$75 + 4x + 110 + x = 360$		Substitution
$5x + 185 = 360$		Combine like terms.
$5x + 185 - 185 = 360 - 185$		Subtract 185 from each side.
$5x = 175$		Simplify.
$x = 35$		Divide each side by 5.

Answer: So, $m\angle T = 35°$ and $m\angle R = 4(35)$ or $140°$.

CHECK Your Progress

1 **Find the value of *x*. Then find each missing angle measure.**

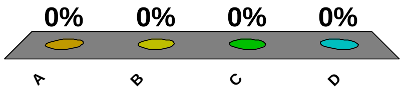


A. $x = 4$; $m\angle A = 4°$ and $m\angle C = 16°$

B. $x = 5$; $m\angle A = 5°$ and $m\angle C = 20°$

C. $x = 40$; $m\angle A = 40°$ and $m\angle C = 160°$

D. $x = 104$; $m\angle A = 104°$ and $m\angle C = 416°$



CheckPoint

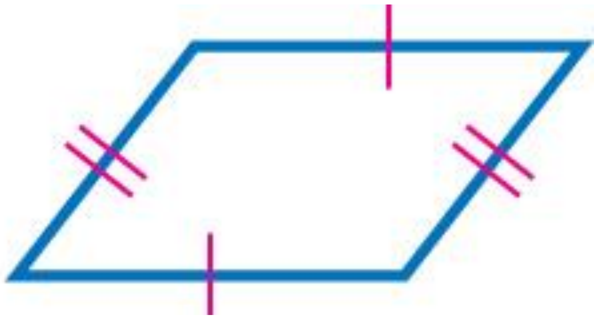
EXAMPLE Classify Quadrilaterals

2 Classify each quadrilateral using the name that *best* describes it.

A.

Answer: trapezoid

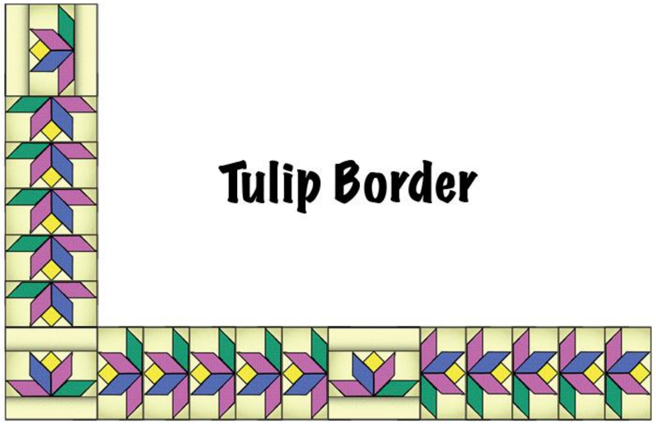
B.



Answer: parallelogram

CHECK Your Progress

2 **QUILT PATTERN** The photograph shows a pattern for the border of a quilt. Classify the quadrilaterals used to form the leaves using the name that *best* describes them.



A. square

B. rectangle

C. rhombus and rectangle

D. parallelogram and square

0%

A B C D

CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

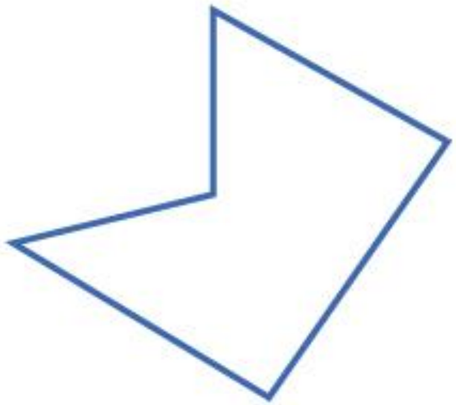
- Classify polygons.
- Determine the sum of the measures of the interior and exterior angles of a polygon.

New Vocabulary

- polygon
- diagonal
- interior angles
- regular polygon

EXAMPLE **Classify Polygons**

1 **A. Classify the polygon.**

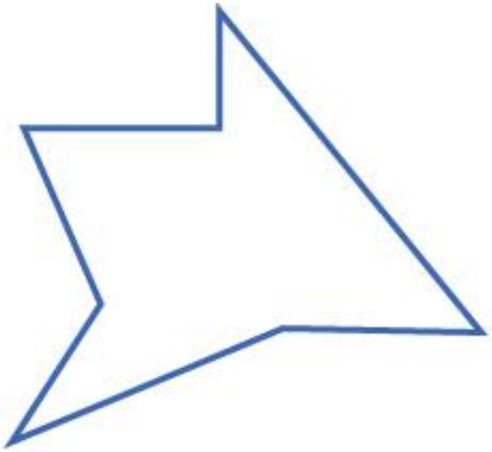


This polygon has 5 sides.

Answer: It is a pentagon.

EXAMPLE Classify Polygons

1 **B. Classify the polygon.**



This polygon has 7 sides.

Answer: It is a heptagon.

CHECK Your Progress

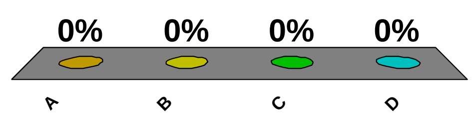
1 A. Classify the polygon.

A. pentagon

B. hexagon

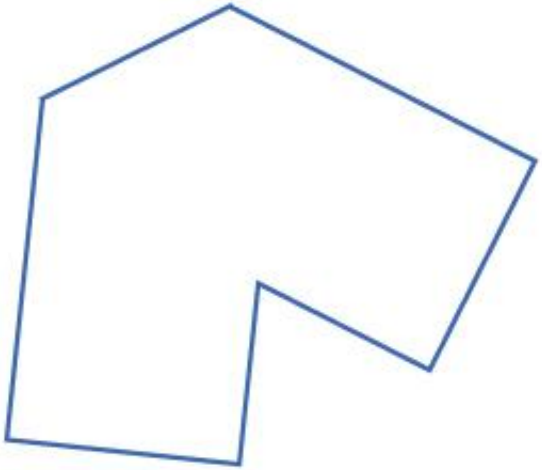
C. heptagon

D. octagon



CHECK Your Progress

1 B. Classify the polygon.

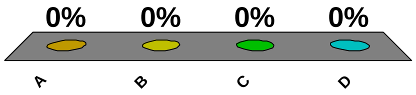


A. nonagon

B. octagon

C. heptagon

D. hexagon



CheckPoint

KEY CONCEPT *Interior Angles of a Polygon*

If a polygon has n sides, then $n - 2$ triangles are formed. The sum of the degree measures of the interior angles of the polygon is $(n - 2)180$.

EXAMPLE Measures of Interior Angles

2 Find the sum of the measures of the interior angles of a quadrilateral.

A quadrilateral has 4 sides. Therefore, $n = 4$.

$(n - 2)180 = (4 - 2)180$ Replace n with 4.

$= 2(180)$ or 360 Simplify.

Answer: The sum of the measures of the interior angles of a quadrilateral is 360°.

CHECK Your Progress

2 Find the sum of the measures of the interior angles of a pentagon.

A. 108°

B. 540°

C. 720°

D. 900°

0%

A B C D

CheckPoint

Real-World EXAMPLE

3 TRAFFIC SIGNS A stop sign is a regular octagon. What is the measure of one interior angle in a stop sign?

Step 1 Find the sum of the measures of the angles. An octagon has 8 sides. Therefore, $n = 8$.

$(n - 2)180$	$= (8 - 2)180$	Replace n with 8.
	$= 6(180)$ or 1080	Simplify.

The sum of the measures of the interior angles is 1080°.

Step 2 Divide the sum by 8 to find the measure of one angle.

$1080 \div 8 = 135$

Answer: So, the measure of one interior angle in a stop sign is 135°.

CHECK Your Progress

3 **PICNIC TABLE** A picnic table in the park is a regular hexagon. What is the measure of one interior angle in the picnic table?

A. 720°

B. 128.57°

C. 120°

D. 108°

0%

A B C D

CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find areas of parallelograms.
- Find the areas of triangles and trapezoids.

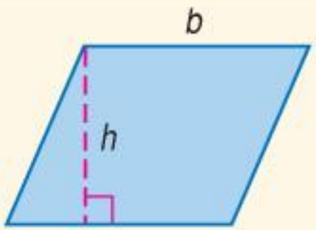
New Vocabulary

- base
- altitude

KEY CONCEPT *Area of a Parallelogram*

Words If a parallelogram has a base of b units and a height of h units, then the area A is bh square units.

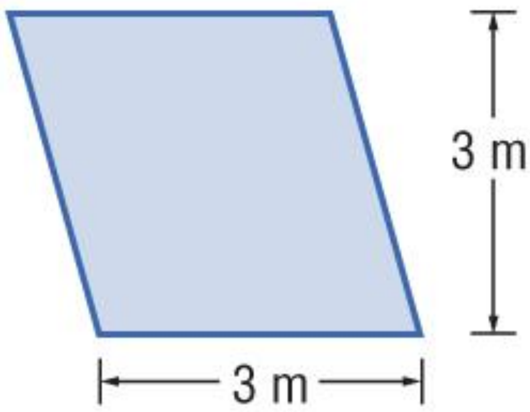
Model



Symbols $A = bh$

EXAMPLE Find Areas of Parallelograms

1 A. Find the area of the parallelogram.



The base is 3 meters.

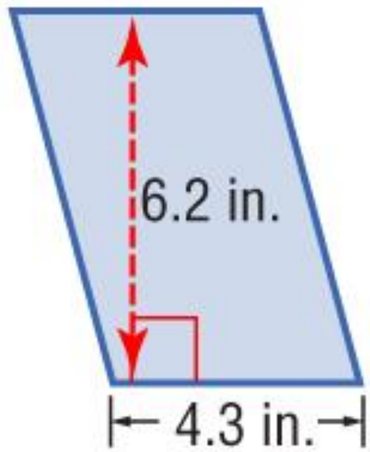
The height is 3 meters.

$A = bh$	Area of a parallelogram
$A = 3 \bullet 3$	Replace *b* with 3 and *h* with 3.
$A = 9$	Multiply.

Answer: The area is 9 square meters.

EXAMPLE Find Areas of Parallelograms

1 B. Find the area of the parallelogram.



Estimate $A = 4 \times 6$ or 24

The base is 4.3 inches.

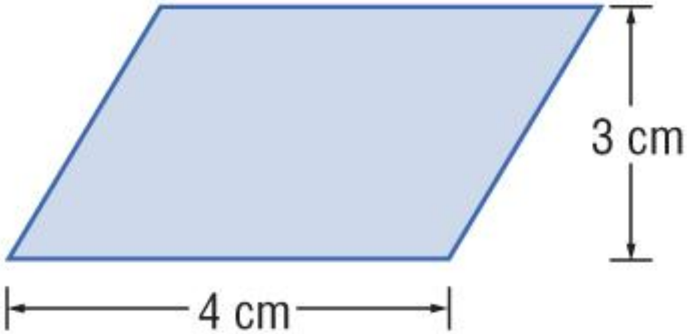
The height is 6.2 inches.

$A = bh$	Area of a parallelogram
$A = 4.3 \bullet 6.2$	Replace b with 4.3 and h with 6.2.
$A = 26.66$	Multiply.

Answer: The area is 26.66 square inches. Is the answer reasonable?

CHECK Your Progress

1 **A. Find the area of the parallelogram.**

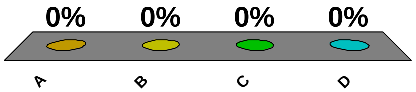


A. 6 cm^2

B. 7 cm^2

C. 12 cm^2

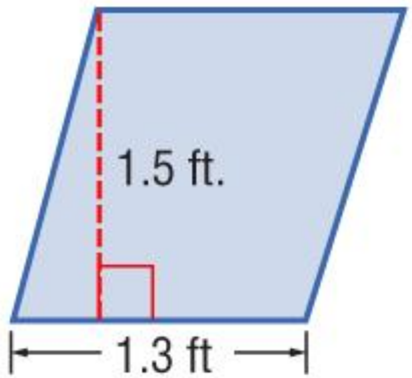
D. 14 cm^2



CheckPoint

CHECK Your Progress

1 **B.** Find the area of the parallelogram.

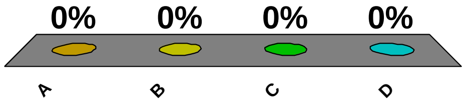


A. $0.975\ \text{ft}^2$

B. $1.95\ \text{ft}^2$

C. $2.8\ \text{ft}^2$

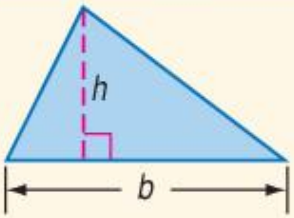
D. $5.6\ \text{ft}^2$



KEY CONCEPT — *Area of a Triangle*

Words If a triangle has a base of b units and a height of h units, then the area A is $\frac{1}{2}bh$ square units.

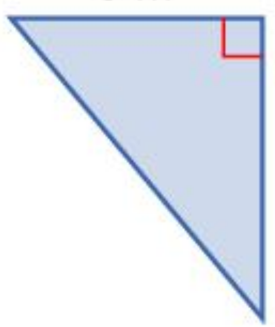
Model



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

EXAMPLE Find Areas of Triangles

2 A. Find the area of the triangle.



The base is 3 meters.

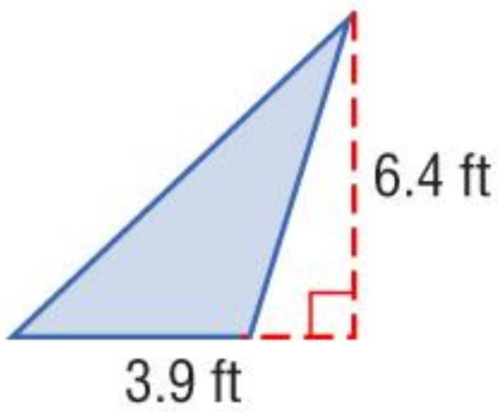
The height is 4 meters.

$A = \frac{1}{2}bh$	Area of a triangle
$A = \frac{1}{2}(3)(4)$	Replace *b* with 3 and *h* with 4.
$A = \frac{1}{2}(12)$	Multiply. 3 × 4 = 12
$A = 6$	Simplify.

Answer: The area of the triangle is 6 square meters.

EXAMPLE Find Areas of Triangles

2 B. Find the area of the triangle.



The base is 3.9 feet.

The height is 6.4 feet.

$A = \frac{1}{2}bh$ — Area of a triangle

$A = \frac{1}{2}(3.9)(6.4)$ — Replace *b* with 3.9 and *h* with 6.4.

EXAMPLE Find Areas of Triangles

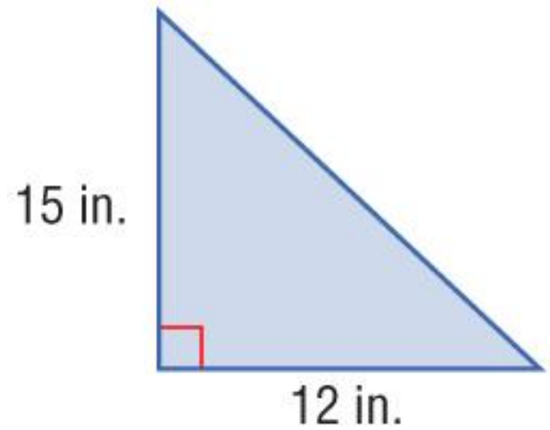
2 $A = \frac{1}{2}(24.96)$ Multiply. 3.9 × 6.4 = 24.96

$A = 12.48$ Simplify.

Answer: The area of the triangle is 12.48 square feet.

CHECK Your Progress

2 A. Find the area of the triangle.



A. 180 in^2

B. 90 in^2

C. 27 in^2

D. 13.5 in^2

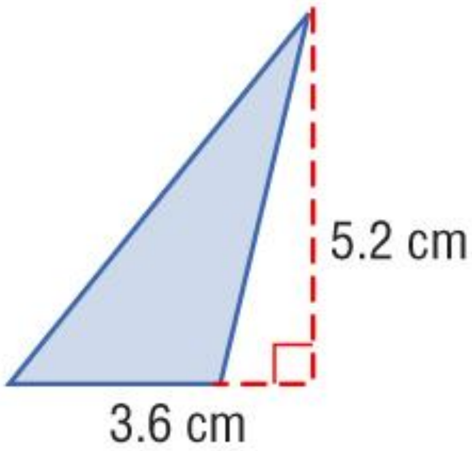
0%

A B C D

CheckPoint

Check Your Progress

2 **B.** Find the area of the triangle.



A. 4.4 cm^2

B. 8.8 cm^2

C. 9.36 cm^2

D. 18.72 cm^2

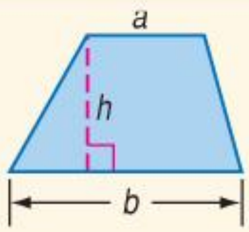
0%

A B C D

KEY CONCEPT — *Area of a Trapezoid*

Words If a trapezoid has bases of a units and b units and a height of h units, then the area A of the trapezoid is $\frac{1}{2}h(a + b)$ square units.

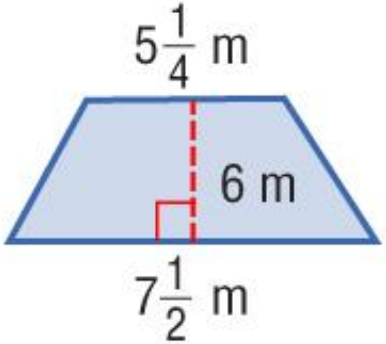
Model



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

EXAMPLE Find Area of a Trapezoid

3 Find the area of the trapezoid.



The height is 6 meters.

The bases are $5\frac{1}{4}$ meters and $7\frac{1}{2}$ meters. **Estimate** $\frac{1}{2}(6)(5+8)$ or 39

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

$$A = \frac{1}{2} \bullet 6\left(5\frac{1}{4} + 7\frac{1}{2}\right)$$ Replace h with 6 and a with $5\frac{1}{4}$ and b with $7\frac{1}{2}$.

EXAMPLE Find Area of a Trapezoid

3

$$A = \frac{1}{2} \bullet 6 \bullet 12\frac{3}{4}$$

$$5\frac{1}{4} + 7\frac{1}{2} = 12\frac{3}{4}$$

$$A = \frac{1}{\cancel{2}_{1}} \bullet \frac{\cancel{6}^{3}}{1} \bullet \frac{51}{4}$$

Divide out the common factors.

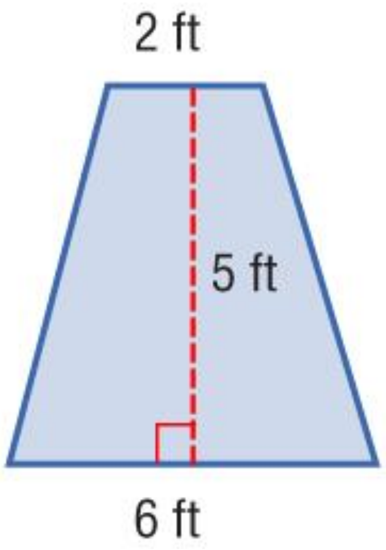
$$A = \frac{153}{4} \text{ or } 38\frac{1}{4}$$

Simplify.

Answer: The area of the trapezoid is $38\frac{1}{4}$ square meters.

CHECK Your Progress

3 Find the area of the trapezoid.



A. 20 ft^2

B. 30 ft^2

C. 40 ft^2

D. 60 ft^2

0%

A B C D

CheckPoint

Real-World EXAMPLE

4 PAINTING A wall that needs to be painted is 16 feet wide and 9 feet tall. There is a doorway that is 3 feet by 8 feet and a window that is 6 feet by $5\frac{1}{2}$ feet. What is the area to be painted?

To find the area to be painted, subtract the areas of the door and window from the area of the entire wall.

Estimate $A = (15 \bullet 10) - (3 \bullet 10 + 6 \bullet 6)$ or about 84

Real-World EXAMPLE

4 **Area of the wall** | **Area of the door** | **Area of the window**

Area of the wall	Area of the door	Area of the window
$A = bh$	$A = bh$	$A = bh$
$A = 16 \bullet 9$	$A = 3 \bullet 8$	$A = 6 \bullet 5\frac{1}{2}$
$A = 144$	$A = 24$	$A = 33$

Answer: The area to be painted is 144 – 24 – 33 or 87 square feet. The answer is close to the estimate so the answer is reasonable.

CHECK Your Progress

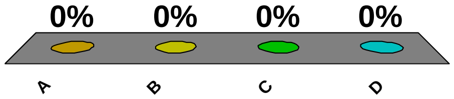
4 **GARDENING** A garden needs to be covered with fresh soil. The garden is 12 feet wide and 15 feet long. A rectangular concrete path runs through the middle of the garden and is 3 feet wide and 15 feet long. Find the area of the garden which needs to be covered with fresh soil.

A. 225 ft^2

B. 180 ft^2

C. 135 ft^2

D. 45 ft^2



End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find circumference of circles.
- Find area of circles.

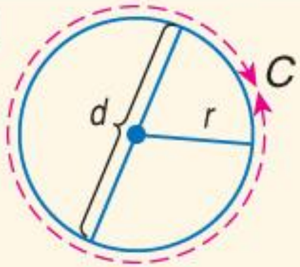
New Vocabulary

- circle
- diameter
- center
- circumference
- radius
- π (pi)

KEY CONCEPT *Circumference of a Circle*

Words The circumference of a circle is equal to its diameter times π, or 2 times its radius times π.

Model



Symbols $C = \pi d$ or $C = 2\pi r$

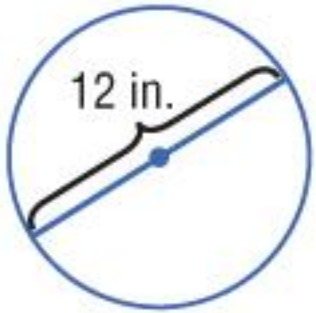
Concepts in Motion

Interactive Lab: Circumference and Diameter

Click here to view!

EXAMPLE Find the Circumference of a Circle

1 A. Find the circumference of the circle to the nearest tenth.



$C = \pi d$		Circumference of a circle
$= \pi \bullet 12$		Replace *d* with 12.
$= 12\pi$		Simplify. This is the *exact* circumference.

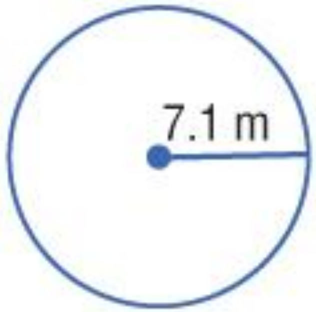
To estimate the circumference, use a calculator.

12 × 2nd [π] ENTER 37.69911184

Answer: The circumference is about 37.7 inches.

EXAMPLE Find the Circumference of a Circle

1 **B. Find the circumference of the circle to the nearest tenth.**

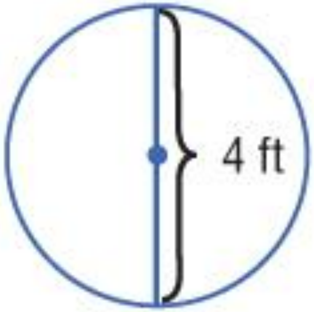


$C = 2\pi r$		Circumference of a circle
$= 2 \bullet \pi \bullet 7.1$		Replace r with 7.1.
≈ 44.6		Simplify. Use a calculator.

Answer: The circumference is about 44.6 meters.

CHECK Your Progress

1 **A.** Find the circumference of the circle to the nearest tenth.

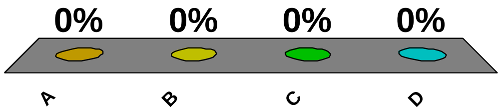


A. 12 ft

B. 12.6 ft

C. 25.1 ft

D. 50.3 ft



CheckPoint

CHECK Your Progress

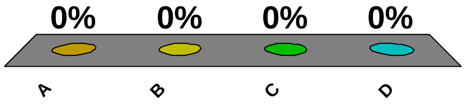
1 B. Find the circumference of the circle to the nearest tenth.

A. 5.0 cm

B. 8.0 cm

C. 10.1 cm

D. 32.2 cm



Real-World EXAMPLE

2 **LANDSCAPING** **A landscaper has a tree whose roots form a ball-shaped bulb with a circumference of 110 inches. What is the minimum diameter that the landscaper will have to dig the hole in order to plant the tree?**

Explore You know the circumference of the roots of the tree. You need to know the diameter of the hole to be dug.

Plan Use the formula for the circumference of a circle to find the diameter.

Real-World EXAMPLE

2 Solve

$C = \pi d$	Circumference of a circle
$110 = \pi \bullet d$	Replace *C* with 110.
$\frac{110}{\pi} = d$	Divide each side by π.
$35.0 \approx d$	Simplify. Use a calculator.

Real-World EXAMPLE

2 **Answer:** The diameter of the hole should be at least 35 inches.

Check Is the solution reasonable? Check by replacing *d* with 35 in $C = \pi d$.

$C = \pi d$	Circumference of a circle
$C = \pi \bullet 35$	Replace *d* with 35.
$C \approx 110$	Simplify. Use a calculator.

The solution is reasonable.

CHECK Your Progress

2 **SWIMMING POOL** A circular swimming pool has a circumference of 48 feet. Matt must swim across the diameter of the pool. How far will Matt swim?

A. 7.6 ft

B. 15.3 ft

C. 47.1 ft

D. 150.7 ft

0%

A B C D

CheckPoint

KEY CONCEPT *Area of a Circle*

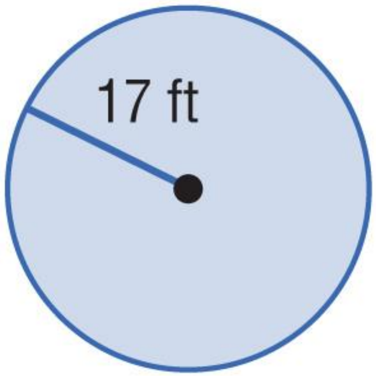
Words The area of a circle is equal to π times the square of its radius.

Symbols $A = \pi r^2$

Model

EXAMPLE Find Areas of Circles

3 A. Find the area of the circle. Round to the nearest tenth.



Estimate $3 \bullet 17^2$ or 867

A	$= \pi r^2$	Area of a circle
	$= \pi \bullet 17^2$	Replace r with 17.
	$= \pi \bullet 289$	Evaluate 17^2.
	$\approx 907.9 \text{ ft}^2$	Use a calculator. The answer is reasonable.

Answer: The area is about 907.9 square feet.

EXAMPLE Find Areas of Circles

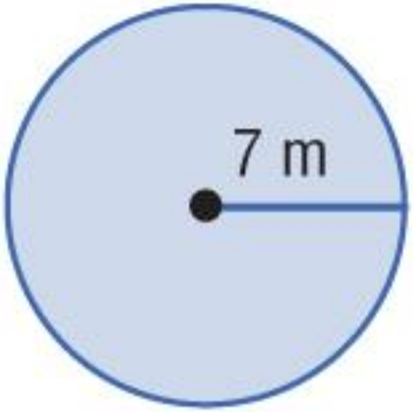
3 B. Find the area of the circle. Round to the nearest tenth.

Estimate		$3 \bullet 16$ or 48
A	$= \pi r^2$	Area of a circle
	$= \pi \bullet 4.15^2$	Replace r with 4.15.
	$= \pi \bullet 17.2225$	Evaluate $(4.15)^2$.
	$\approx 54.1 \text{ cm}^2$	Use a calculator. The answer is reasonable.

Answer: The area is about 54.1 square centimeters.

CHECK Your Progress

3 **A.** Find the area of the circle. Round to the nearest tenth.



A. 38.5 m^2

B. 44.0 m^2

C. 153.9 m^2

D. 615.8 m^2

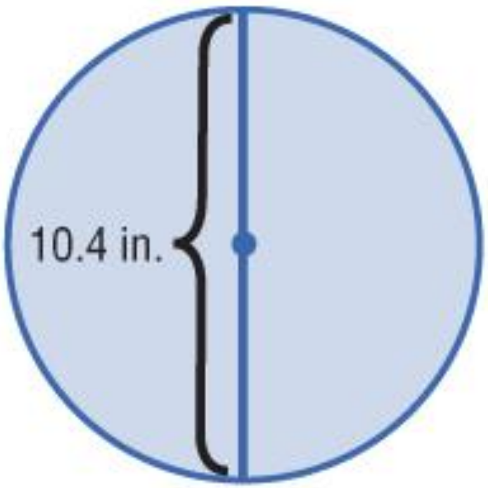
0%

A B C D

CheckPoint

CHECK Your Progress

3 **B.** Find the area of the circle. Round to the nearest tenth.



A. 16.3 in^2

B. 32.7 in^2

C. 84.9 in^2

D. 339.8 in^2

0%

A B C D

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Five-Minute Check (over Lesson 10-7)

Main Idea and Vocabulary

Concept Summary: Area Formulas

Example 1: Find Areas of Composite Figures

Example 2: Real-World Example

Main Idea

- Find area of composite figures.

New Vocabulary

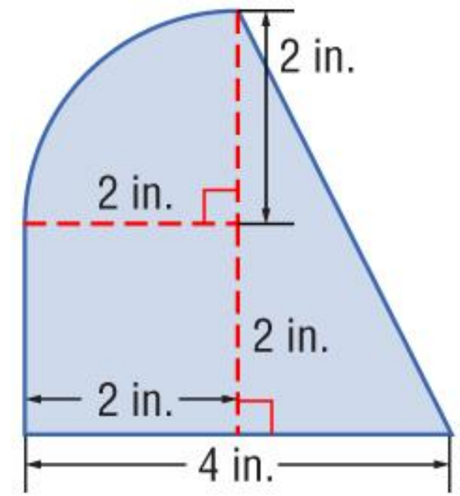
- composite figures

CONCEPT SUMMARY — *Area Formulas*

Triangle	Trapezoid	Parallelogram	Circle
$A = \frac{1}{2}bh$	$A = \frac{1}{2}h(a + b)$	$A = bh$	$A = \pi r^2$

EXAMPLE Find Areas of Composite Figures

1 Find the area of the figure to the nearest tenth.

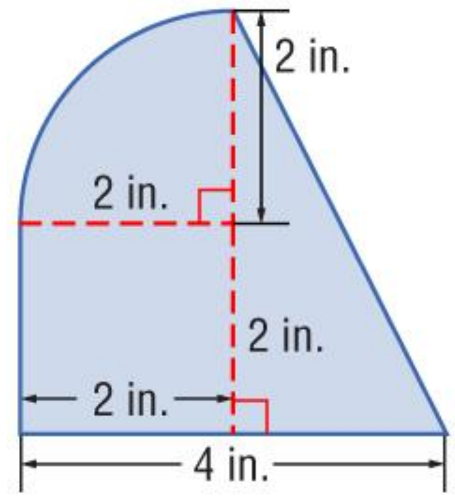


Explore You know the dimensions of the figure. You need to find its area.

Plan First, separate the figure into a triangle, square, and a quarter-circle. Then find the sum of the areas of the figure.

EXAMPLE **Find Areas of Composite Figures**

1 Find the area of the figure to the nearest tenth.



Solve Area of Triangle

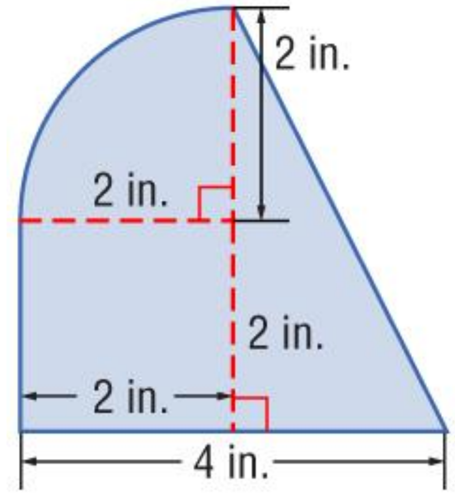
$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(2)(4)$$ $b = 2$ and $h = 4$

$$A = 4$$ Simplify.

EXAMPLE Find Areas of Composite Figures

1 Find the area of the figure to the nearest tenth.



Solve Area of Square

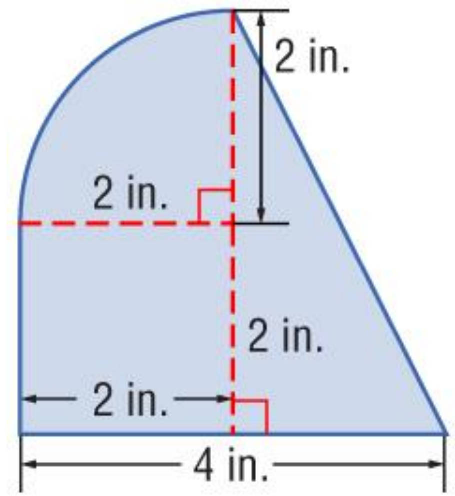
$A = bh$

$A = (2)(2)$ b and $h = 2$

$A = 4$ Simplify.

EXAMPLE Find Areas of Composite Figures

1 **Find the area of the figure to the nearest tenth.**



Solve Area of Quarter-circle

$$A = \frac{1}{4}\pi r^2$$

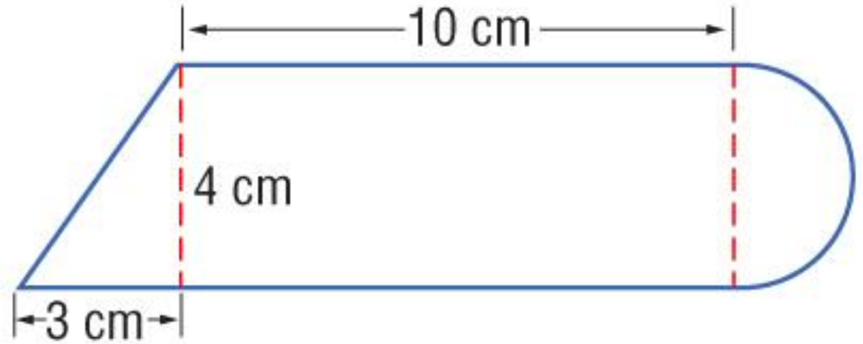
$$A = \frac{1}{4}\pi \cdot 2^2 \qquad r = 2$$

$$A \approx 3.1 \qquad \text{Simplify.}$$

Answer: The area of the figure is 4 + 4 + 3.1 or about 11.1 square inches.

CHECK Your Progress

1 Find the area of the figure to the nearest tenth.

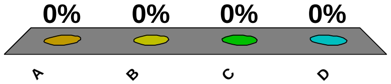


A. 71.1 cm^2

B. 58.6 cm^2

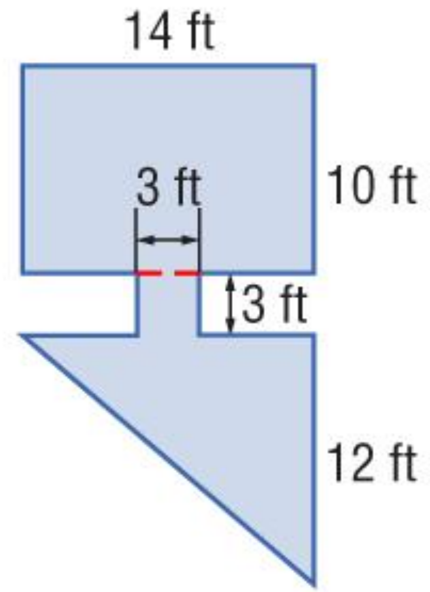
C. 58.3 cm^2

D. 52.3 cm^2



Real-World EXAMPLE

2 **CARPETING** **Carpeting costs $2 per square foot. How much will it cost to carpet the area shown?**



Step 1 Find the area to be carpeted.

Area of Rectangle

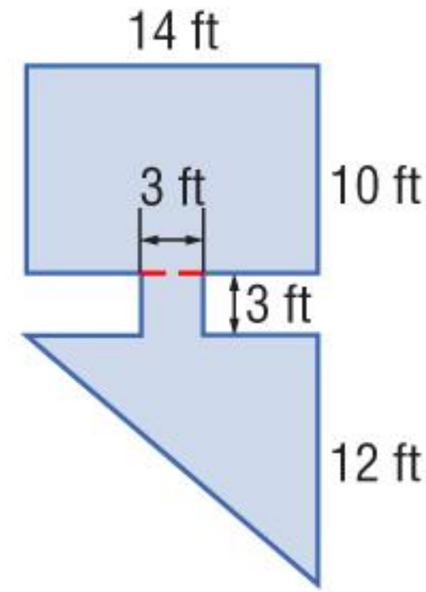
$A = bh$	Area of a rectangle
$A = (14)(10)$	Replace b with 14 and h with 10.
$A = 140$	Simplify.

Real-World EXAMPLE

2 **CARPETING** **Carpeting costs $2 per square foot. How much will it cost to carpet the area shown?**

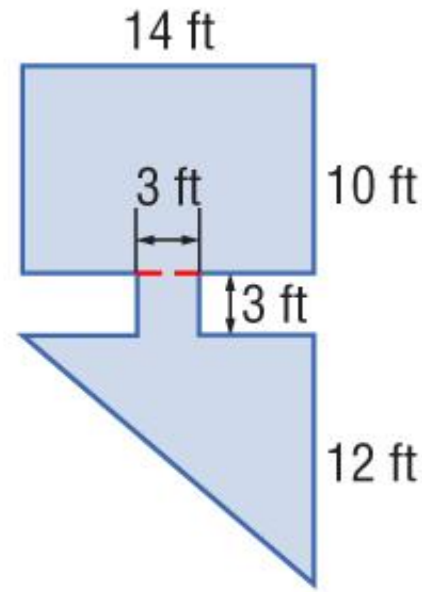
Area of Square

$A = bh$	Area of a square
$A = (3)(3)$	Replace b and h with 3.
$A = 9$	Simplify.



Real-World EXAMPLE

2 CARPETING Carpeting costs \$2 per square foot. How much will it cost to carpet the area shown?



Area of Triangle

$A = \frac{1}{2}bh$	Area of a triangle
$A = \frac{1}{2}(14)(12)$	Replace *b* with 14 and *h* with 12.
$A = 84$	Simplify.

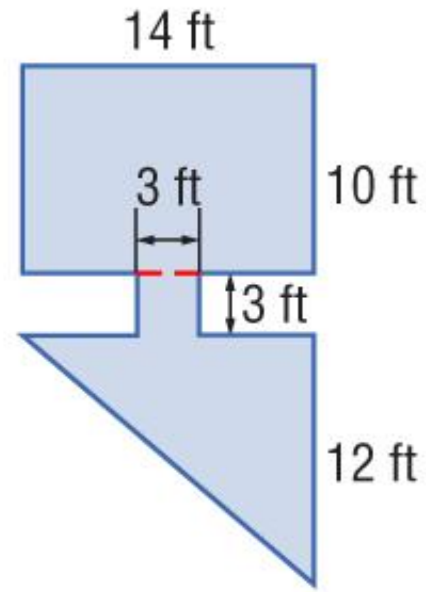
The area to be carpeted is 140 + 9 + 84 or 233 square feet.

Real-World EXAMPLE

2 **CARPETING** **Carpeting costs $2 per square foot. How much will it cost to carpet the area shown?**

Step 2 Find the cost of the carpeting.

$2(233) = 466$



Answer: So, it will cost $466 to carpet the area shown.

CHECK Your Progress

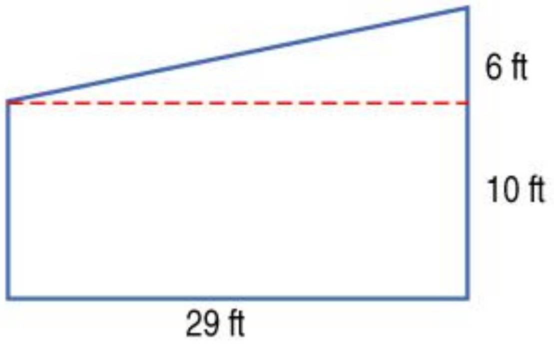
2 **PAINTING** One gallon of paint is advertised to cover 100 square feet of wall surface. About how many gallons will be needed to paint the wall shown below?

A. about 3 gallons

B. about 4 gallons

C. about 5 gallons

D. about 6 gallons



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A B C D

CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

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[Image Bank](#)

[Math Tools](#)

Concepts in Motion

Animation [Classify Quadrilaterals](#)

Interactive Lab [Circumference and Diameter](#)

Five-Minute CHECK

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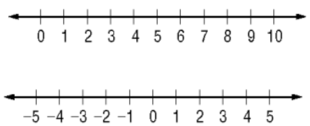

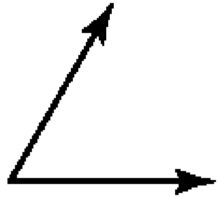

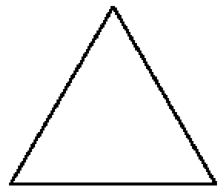

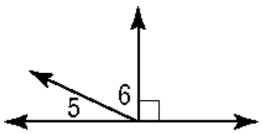

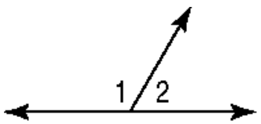

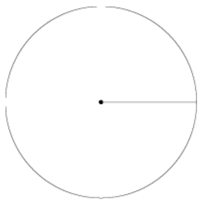

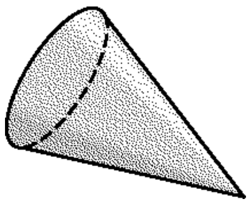

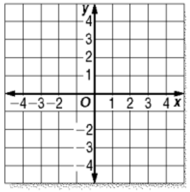

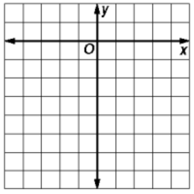

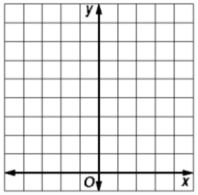

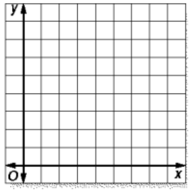

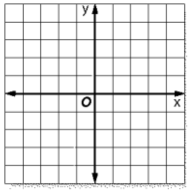

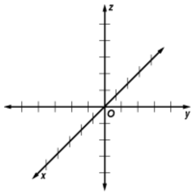

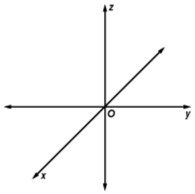

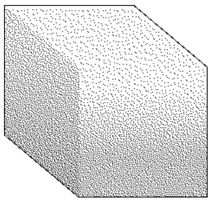

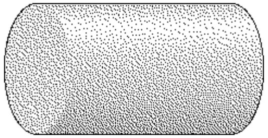

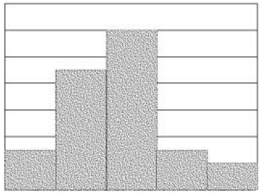

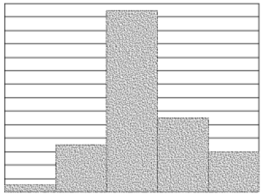

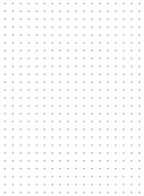

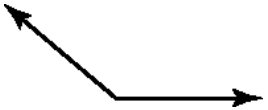

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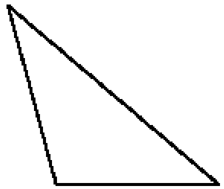

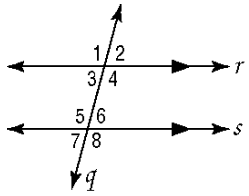

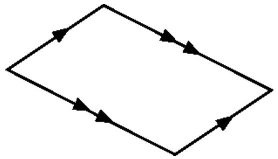

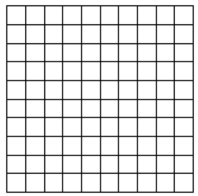

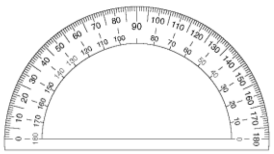

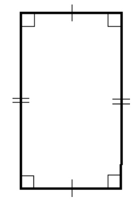

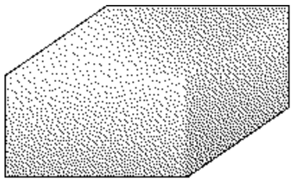

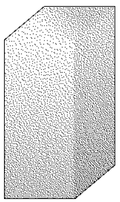

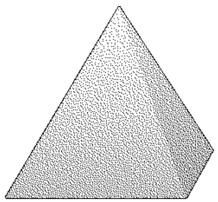

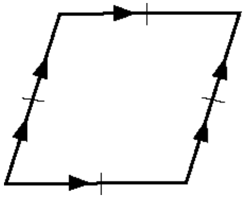

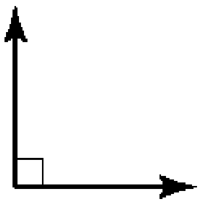

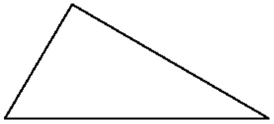

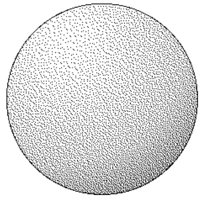

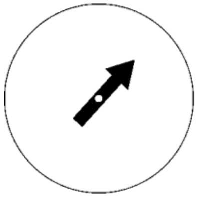

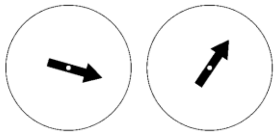

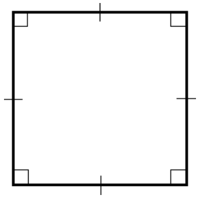

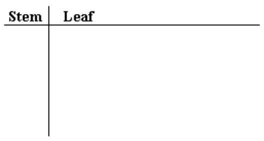

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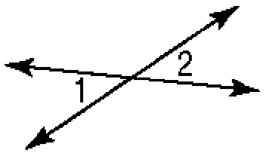
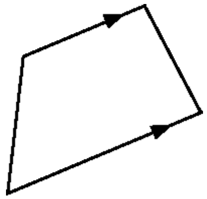
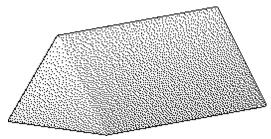
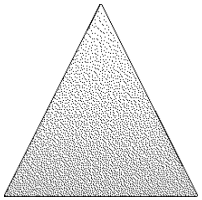
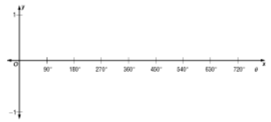
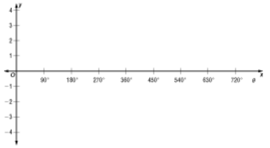


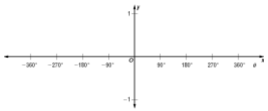


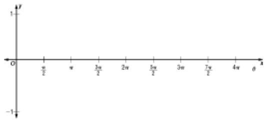


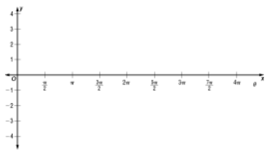


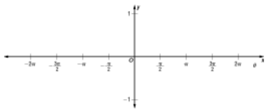












Concepts in Motion

Animation

Five-Minute CHECK (over Chapter 9)

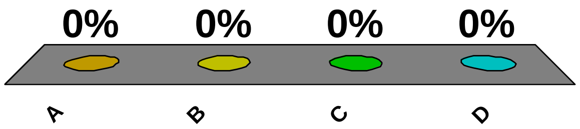
1 Estimate $\sqrt{54}$ to the nearest whole number.

A. 6

B. 7

C. 8

D. 9



Five-Minute CHECK (over Chapter 9)

2 **Order** $3.131313\ldots, \sqrt{10}, 3\frac{1}{3}, \sqrt{9}$ **from least to greatest.**

A. $\sqrt{9}, \sqrt{10}, 3.131313\ldots, 3\frac{1}{3}$

B. $\sqrt{9}, 3.131313\ldots, 3\frac{1}{3}, \sqrt{10}$

C. $\sqrt{9}, 3.131313\ldots, \sqrt{10}, 3\frac{1}{3}$

D. $\sqrt{9}, 3\frac{1}{3}, 3.131313\ldots, \sqrt{10}$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Chapter 9)

3 If c is the measure of the hypotenuse and $a = 6$ and $b = 9$, find the measure of c. Round to the nearest tenth, if necessary.

A. 10.5 units

B. 10.6 units

C. 10.7 units

D. 10.8 units

0%

A B C D

CheckPoint

Five-Minute CHECK (over Chapter 9)

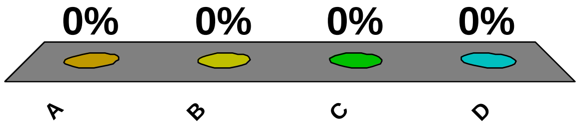
4 Find the distance between *A*(–3, 4) and *B*(5, 2) to the nearest tenth. Then find the coordinates of the midpoint of $\overline{AB}$.

A. 8.2 units; (1, 3)

B. 8.2 units; (4, 1)

C. 7.7 units; (3, 1)

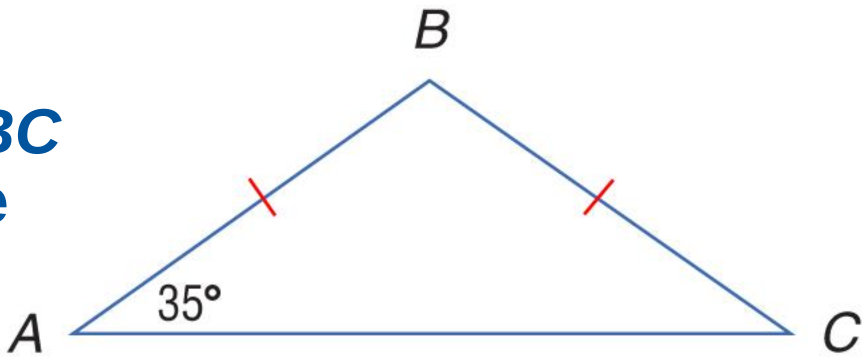
D. 7.7 units; (1, 4)



Five-Minute CHECK (over Chapter 9)

Standardized Test Practice

5 In the figure, triangle *ABC* is isosceles. What is the measure of angle *B*?



A. 35°

B. 70°

C. 110°

D. 145°

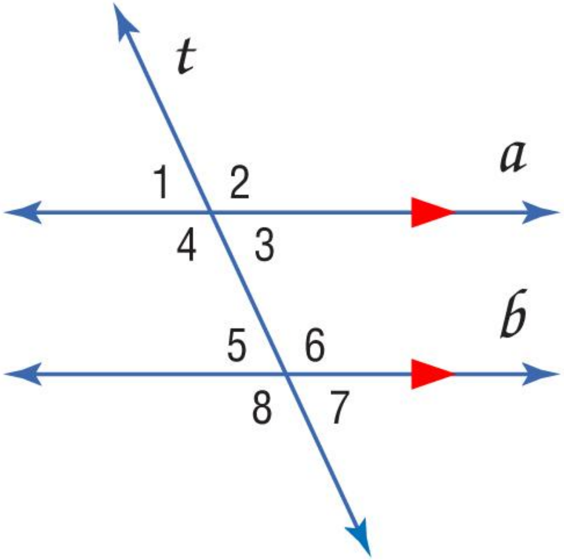
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-1)

1 In the figure, $a \parallel b$ and t is a transversal. If $m\angle 3 = 37°$, find $m\angle 8$.

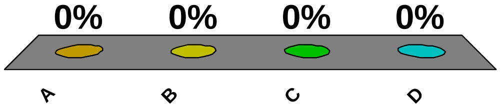


A. 37°

B. 53°

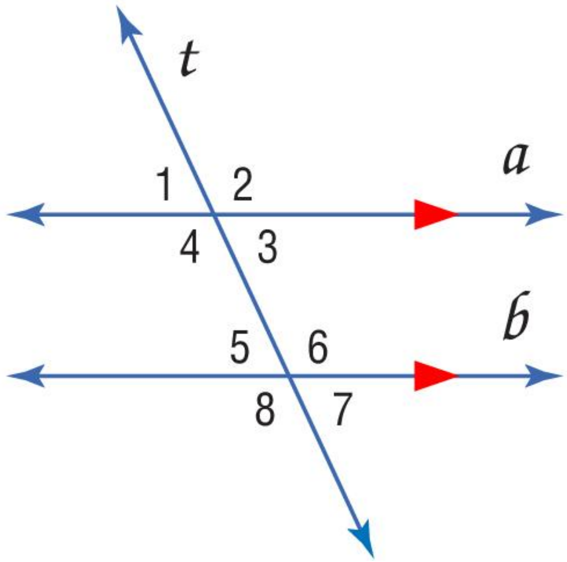
C. 127°

D. 143°



Five-Minute CHECK (over Lesson 10-1)

2 In the figure, $a \parallel b$ and t is a transversal. If $m\angle 3 = 37°$, find $m\angle 7$.



A. 37°

B. 53°

C. 127°

D. 143°

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-1)

3 If $\angle A$ and $\angle B$ are supplementary, $m\angle A = 3x - 7$, and $m\angle B = 2x - 3$, what is the measure of each angle?

A. $m\angle A = 121°; m\angle B = 59°$

B. $m\angle A = 101°; m\angle B = 79°$

C. $m\angle A = 117°; m\angle B = 63°$

D. $m\angle A = 107°; m\angle B = 73°$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-1)

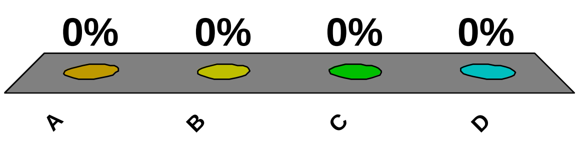
4 A ladder is leaning against a house. The ladder meets the house at an angle that is complementary to 32°. At what angle does the ladder meet the house?

A. 32°

B. 58°

C. 68°

D. 148°

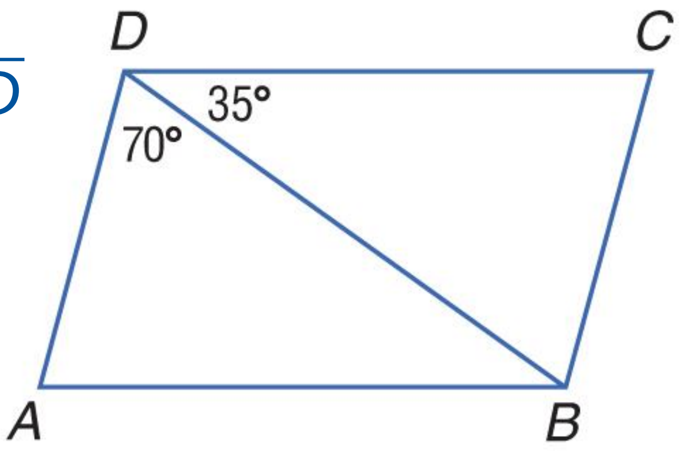


CheckPoint

Five-Minute CHECK (over Lesson 10-1)

Standardized Test Practice

5 Refer to the figure. If $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{AD}$, find $m\angle A$.



A. 35°

B. 70°

C. 75°

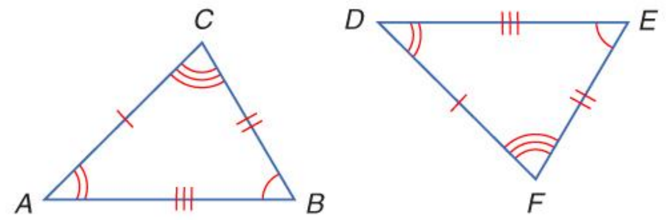
D. 85°

0%

A B C D

Five-Minute CHECK (over Lesson 10-2)

1 **Name the corresponding parts for the pair of congruent triangles shown in the figure. Then complete the congruence statement: Δ*ACB* is congruent to _____.**

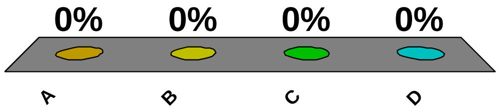


A. $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$, $\overline{AB} = \overline{DE}$, $\overline{BC} = \overline{EF}$, $\overline{CA} = \overline{FD}$, $\triangle ACB \cong \triangle DFE$

B. $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$, $\overline{AB} = \overline{FD}$, $\overline{BC} = \overline{DE}$, $\overline{CA} = \overline{EF}$, $\triangle ACB \cong \triangle DFE$

C. $\angle A \cong \angle F$, $\angle B \cong \angle D$, $\angle C \cong \angle E$, $\overline{AB} = \overline{DE}$, $\overline{BC} = \overline{EF}$, $\overline{CA} = \overline{FD}$, $\triangle ACB \cong \triangle DEF$

D. $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$, $\overline{AB} = \overline{DE}$, $\overline{BC} = \overline{EF}$, $\overline{CA} = \overline{FD}$, $\triangle ACB \cong \triangle DEF$



CheckPoint

Five-Minute CHECK (over Lesson 10-2)

2 If $\triangle PNO \cong \triangle KML$, then $\angle N \cong$?

A. $\angle O$

B. $\angle L$

C. $\angle M$

D. $\angle K$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-2)

3 If $\triangle PNO \cong \triangle KML$, then $\overline{LK} \cong$?

A. $\overline{ON}$

B. $\overline{OP}$

C. $\overline{NO}$

D. $\overline{NP}$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-2)

Standardized Test Practice

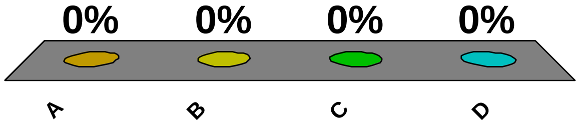
4 **Which of the following must be true if $\triangle PPQR \cong \triangle KLM$?**

A. $\angle Q \cong \angle L$

B. $\overline{LK} = \overline{RP}$

C. $\overline{QR} = \overline{KM}$

D. $\angle RQP \cong \angle LMK$



CheckPoint

Five-Minute CHECK (over Lesson 10-3)

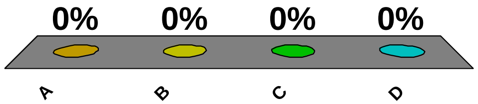
1 Triangle *XYZ* has vertices *X*(–3, 1), *Y*(0, –2), and *Z*(4, 3). Find the coordinates of the vertices after a translation 2 units right and 3 units down.

A. *X'* (–5, 4), *Y'* (–2, 1), and *Z'* (2, 6)

B. *X'* (–5, –2), *Y'* (–2, –5), and *Z'* (2, 0)

C. *X'* (–1, 4), *Y'* (2, 1), and *Z'* (6, 6)

D. *X'* (–1, –2), *Y'* (2, –5), and *Z'* (6, 0)



CheckPoint

Five-Minute CHECK (over Lesson 10-3)

2 Triangle *EFG* has vertices *E*(3, 1), *F*(0, 5) and *G*(–4, 3). Find the coordinates of the vertices after a reflection over the *x*-axis.

A. *E'*(3, –1), *F'*(0, –5), and *G'*(4, 3)

B. *E'*(3, –1), *F'*(0, –5), and *G'*(–4, –3)

C. *E'*(–3, –1), *F'*(0, –5), and *G'*(–4, –3)

D. *E'*(3, –1), *F'*(0, 5), and *G'*(–4, –3)

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-3)

3. The vertices of the figure *ABCD* are *A*(–1, –2), *B*(–4, 0), *C*(–3, –5), and *D*(–5, –3). Find the coordinates of the vertices of the figure after a reflection over the *y*-axis.

A. *A*'(–2, 1), *B*'(0, 4), *C*'(–5, 3), and *D*'(–3, 5)

B. *A*'(–2, –1), *B*'(0, 4), *C*'(–5, 3), and *D*'(3, 5)

C. *A*'(1, –2), *B*'(4, 0), *C*'(3, –5), and *D*'(5, –3)

D. *A*'(–1, 2), *B*'(–4, 0), *C*'(–3, 5), and *D*'(–5, 3)

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-3)

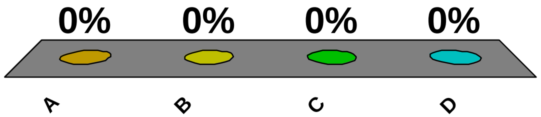
4 **The vertices of Δ*XYZ* are *X*(–1, –2), *Y*(–4, 0), and *Z*(–3, –5). The vertices of Δ*XYZ* after a translation are *X*(–4, –1), *Y*(–7, 1), and *Z*(–6, –4). Write the translation as an ordered pair.**

A. **(–3, –1)**

B. **(3, 1)**

C. **(–3, 1)**

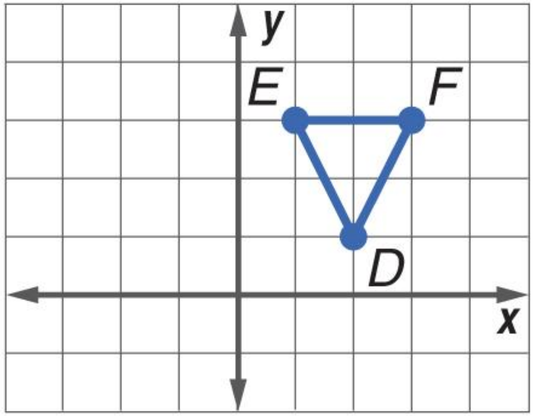
D. **(3, –1)**



CheckPoint

Five-Minute CHECK (over Lesson 10-3)

Standardized Test Practice



5 If Δ*DEF* in the figure is reflected over the *y*-axis, in which quadrant will the image of Δ*DEF* be?

A. I

B. II

C. III

D. IV

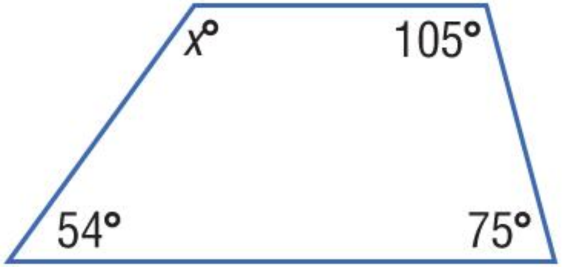
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-4)

1 Refer to the figure. Find the value of *x*.

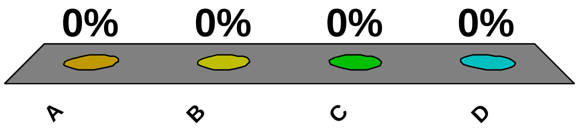


A. 75

B. 105

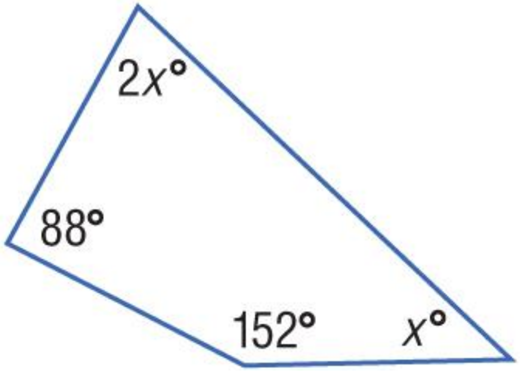
C. 126

D. 276



Five-Minute CHECK (over Lesson 10-4)

2 Refer to the figure. Find the value of *x* and the missing angle numbers.



A. $x = 40$; 40°; 80°

B. $x = 28$; 28°; 56°

C. $x = 20$; 20°; 40°

D. $x = 50$; 50°; 100°

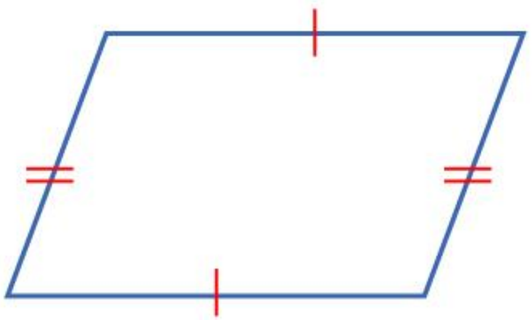
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-4)

3 Classify the quadrilateral in the figure using the name that best describes it.



A. kite

B. parallelogram

C. rectangle

D. rhombus

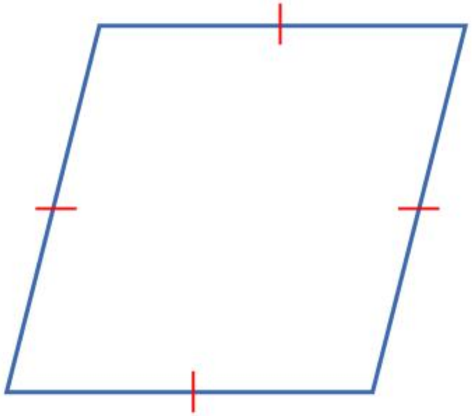
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-4)

4 Classify the quadrilateral in the figure using the name that best describes it.

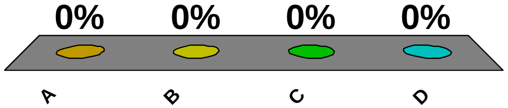


A. kite

B. parallelogram

C. rectangle

D. rhombus



CheckPoint

Five-Minute CHECK (over Lesson 10-4)

Standardized Test Practice

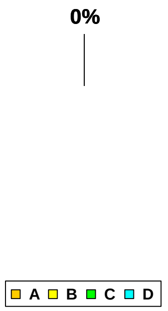
5 Which statement is not true?

A. A trapezoid is a quadrilateral.

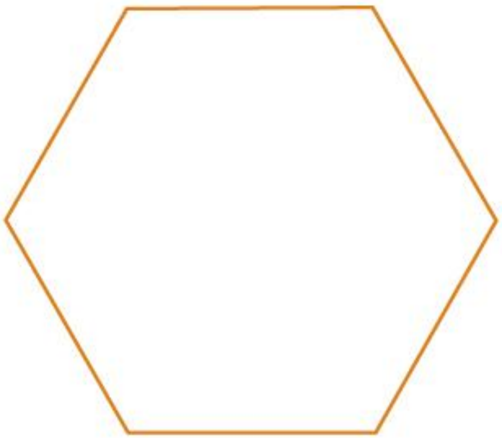
B. A rhombus is a square.

C. A square is a rectangle.

D. A rectangle is a parallelogram.



Five-Minute CHECK (over Lesson 10-5)



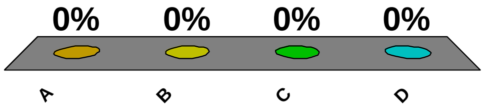
1 Classify the polygon and then determine whether it appears to be regular or not regular.

A. hexagon; regular

B. pentagon; regular

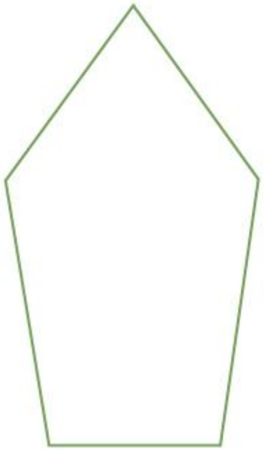
C. heptagon; not regular

D. octagon; not regular



CheckPoint

Five-Minute CHECK (over Lesson 10-5)



2 Classify the polygon and then determine whether it appears to be regular or not regular.

A. heptagon; regular

B. octagon; regular

C. pentagon; not regular

D. hexagon; not regular

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-5)

3 Find the measure of each interior angle of a regular hexagon.

A. 108°

B. 120°

C. 540°

D. 720°

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-5)

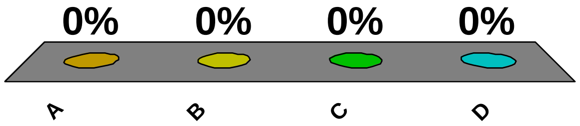
4 The base of a light fixture is in the shape of an octagon. Each side of the base is 4.5 inches. What is the perimeter of the base?

A. 22.5 in.

B. 27 in.

C. 31.5 in.

D. 36 in.



Five-Minute CHECK (over Lesson 10-5)

Standardized Test Practice

5 An interior angle of a regular polygon has a measure of 140°. How many sides does the polygon have?

A. 6

B. 7

C. 9

D. 12

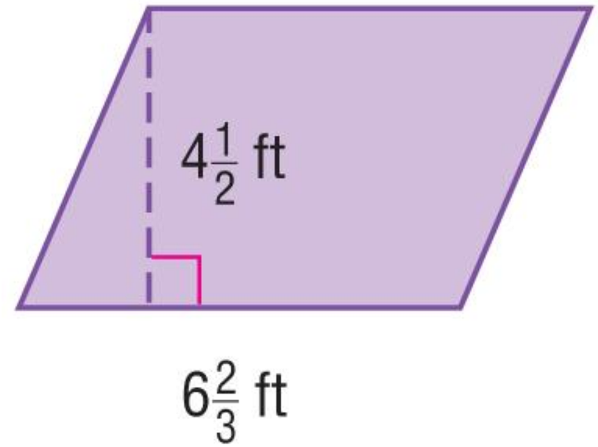
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-6)

1 Find the area of the figure.

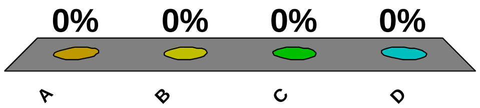


A. 15 ft²

B. 24 ft²

C. 30 ft²

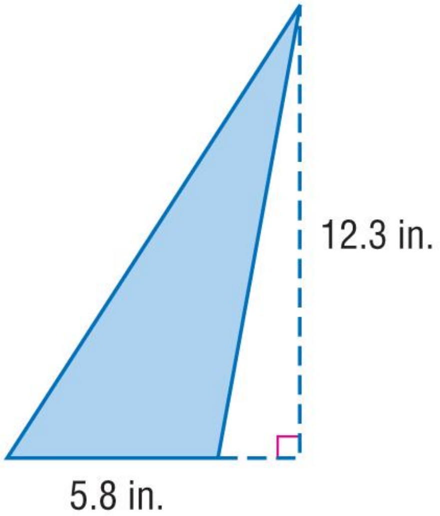
D. 42 ft²



CheckPoint

Five-Minute CHECK (over Lesson 10-6)

2 Find the area of the figure.



A. 18.1 in²

B. 35.67 in²

C. 71.34 in²

D. 142.68 in²

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-6)

3 Find the area of a triangle with base 2.6 km and height 4 km.

A. 5.2 km²

B. 6.2 km²

C. 10.4 km²

D. 20.8 km²

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-6)

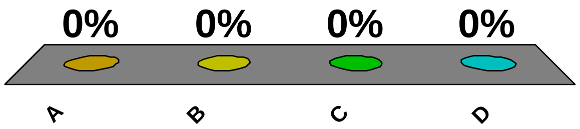
4 **The area of a college basketball court is 4200 square feet. The width of the court is 50 feet. What is the length of the court?**

A. 42 ft

B. 84 ft

C. 168 ft

D. 2050 ft

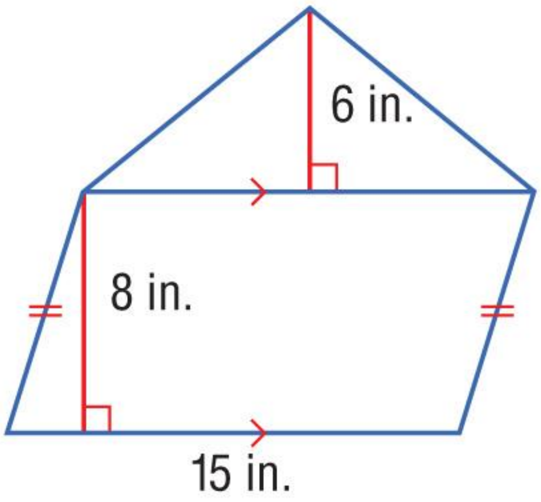


CheckPoint

Five-Minute CHECK (over Lesson 10-6)

Standardized Test Practice

5 What is the area of the figure?



A. 120 in²

B. 165 in²

C. 180 in²

D. 360 in²

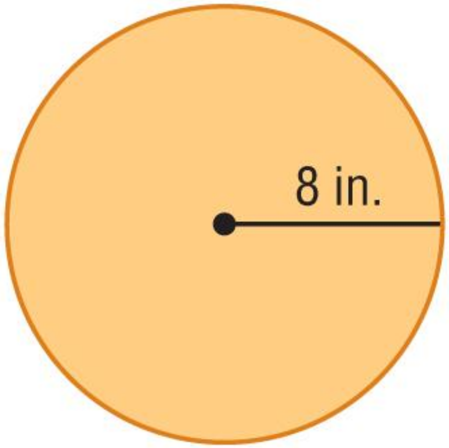
0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-7)

1 Find the circumference and area of the circle in the figure to the nearest tenth.

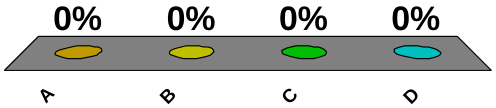


A. 25.1 in., 201.1 in^2

B. 25.1 in., 78.9 in^2

C. 50.3 in., 201.1 in^2

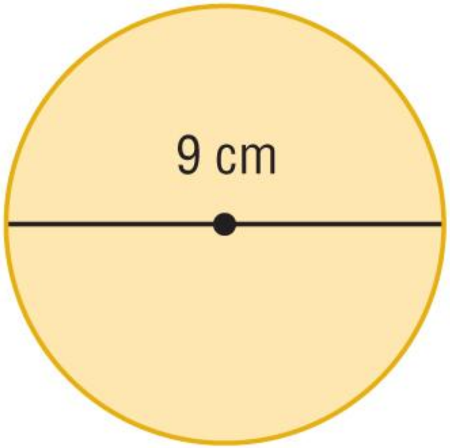
D. 50.3 in., 78.9 in^2



CheckPoint

Five-Minute CHECK (over Lesson 10-7)

2 Find the circumference and area of the circle in the figure to the nearest tenth.

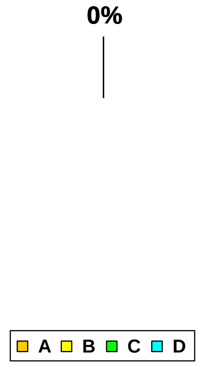


A. 56.5 cm, 254.5 cm²

B. 28.3 cm, 63.6 cm²

C. 56.5 cm, 63.6 cm²

D. 28.3 cm, 254.5 cm²



CheckPoint

Five-Minute CHECK (over Lesson 10-7)

3 The diameter of a circle is 5.7 feet. Find the circumference and area to the nearest tenth.

A. 17.9 ft, 25.5 ft²

B. 35.8 ft, 102.1 ft²

C. 17.9 ft, 102.1 ft²

D. 25.5 ft, 35.8 ft²

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 10-7)

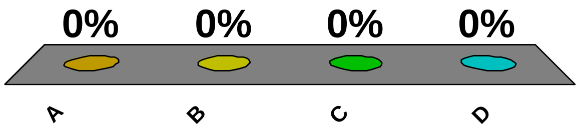
4 The diameter of the lid of a coffee can lid is 3.25 inches. What is the circumference of the lid to the nearest tenth?

A. 1.02 in.

B. 5.1 in.

C. 10.2 in.

D. 20.4 in.

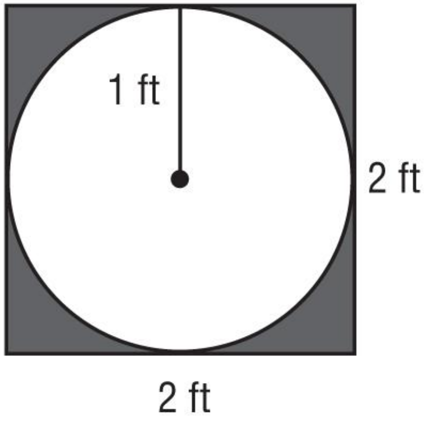


CheckPoint

Five-Minute CHECK (over Lesson 10-7)

Standardized Test Practice

5 A circle with a radius of 1 foot is to be cut from a square of plywood that is 2 feet on each side. What will be the approximate area of the remaining board?

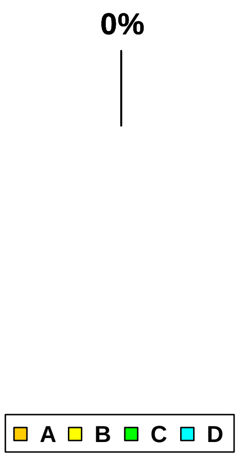


A. 4 ft^2

B. 3.14 ft^2

C. 7.14 ft^2

D. 0.86 ft^2



CheckPoint