
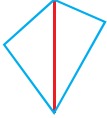


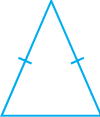





WORDS YOU NEED to Know

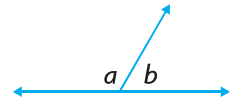
1. Match each word with the picture that best represents it.

a) parallelogram	c) trapezoid	e) diagonal	g) isosceles triangle
b) rhombus	d) rectangle	f) midpoint	h) equilateral triangle
i) 	iii) 	v) 	vii) 
ii) 	iv) 	vi) 	viii) 

SKILLS AND CONCEPTS You Need

Straight Angles

The sum of angles that form a straight angle is 180° .
 $\angle a + \angle b = 180^\circ$



Study Aid

- For more help and practice, see Appendix A-16.

EXAMPLE

Determine the value of the unknown angle.

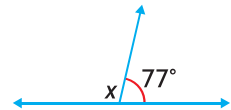
Solution

Since $\angle x$ and 77° form a straight angle, their sum is 180° .

$$77^\circ + \angle x = 180^\circ$$

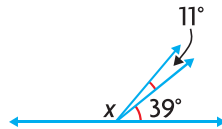
$$\angle x = 180^\circ - 77^\circ$$

$$\angle x = 103^\circ$$

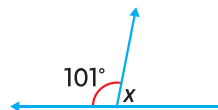


2. Determine each unknown angle.

a)



b)

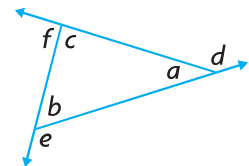


Interior and Exterior Angles of a Triangle

The sum of the interior angles in a triangle is 180° .

$$\angle a + \angle b + \angle c = 180^\circ$$

Each exterior angle equals the sum of the two interior angles opposite it.



$$\angle d = \angle b + \angle c$$

$$\angle e = \angle a + \angle c$$

$$\angle f = \angle a + \angle b$$

EXAMPLE

Determine the value for the unknown angle.

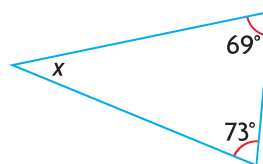
Solution

The sum of the interior angles in a triangle is 180° .

$$\angle x + 73^\circ + 69^\circ = 180^\circ$$

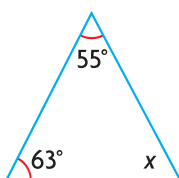
$$\angle x = 180^\circ - 69^\circ - 73^\circ$$

$$\angle x = 38^\circ$$

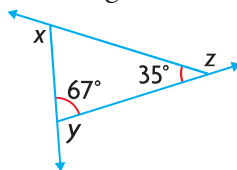


3. Determine the value of each unknown angle.

a)



b)

**Angle Properties of Parallel Lines**

When a transversal crosses 2 parallel lines:

- Corresponding angles are equal.

$$\angle a = \angle e$$

$$\angle c = \angle g$$

$$\angle b = \angle f$$

$$\angle d = \angle h$$

- Alternate angles are equal.

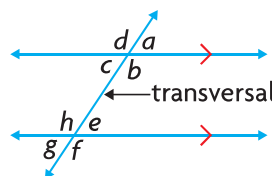
$$\angle b = \angle h$$

$$\angle c = \angle e$$

- The sum of the interior angles on the same side of the transversal is 180° .

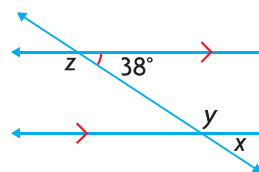
$$\angle b + \angle e = 180^\circ$$

$$\angle c + \angle h = 180^\circ$$

**EXAMPLE**

Determine the values of the unknown angles.

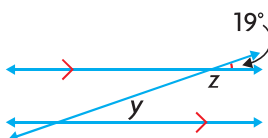
Explain your solution.

**Solution**

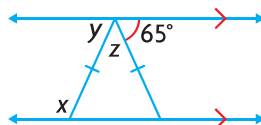
- $\angle x = 38^\circ$ since the angles are corresponding angles.
- The sum of the interior angles on the same side of the transversal is 180° . This means that $\angle y = 180^\circ - 38^\circ = 142^\circ$.
- $\angle z = \angle y = 142^\circ$ since the two angles are alternate angles.

4. Determine the values of the unknown angles. Explain your solution.

a)



b)



Study Aid

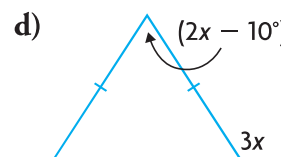
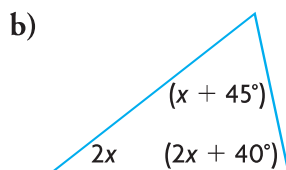
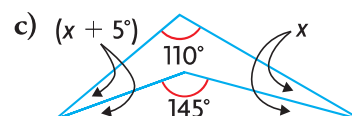
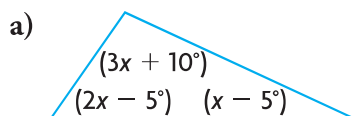
- For help, see the Review of Essential Skills and Knowledge Appendix.

Question	Appendix
5 and 7	A-16
6, 8, and 9	A-17

PRACTICE

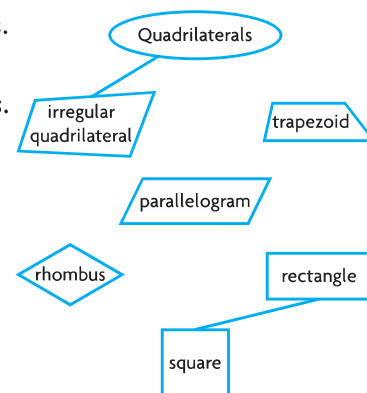
5. Match each property to its corresponding word.
- | | |
|---|---------------------|
| a) two lines at right angles to each other | i) parallel |
| b) two angles or sides next to each other | ii) regular |
| c) two straight lines that do not intersect | iii) transversal |
| d) identical in size and shape | iv) perpendicular |
| e) two angles whose sum is 180° | v) congruent |
| f) a line that intersects two or more other lines | vi) adjacent |
| g) an angle of 180° | vii) straight angle |
| h) a polygon with equal sides and angles | viii) supplementary |
6. Describe a difference and a similarity for each pair of shapes.
- | | |
|------------------------------------|--|
| a) a square and a rhombus | c) a rhombus and a parallelogram |
| b) a rectangle and a parallelogram | d) an equilateral triangle and an isosceles triangle |

7. Find each missing value.



8. This web diagram classifies quadrilaterals.

- a) Copy the diagram into your notebook and draw any missing lines.
b) Explain why these lines are needed.



9. Name a quadrilateral with each property using the web diagram from question 8.
- four congruent sides
 - four different angles
 - two pairs of congruent sides
 - two pairs of congruent angles
 - only two right angles
 - two acute angles and two obtuse angles