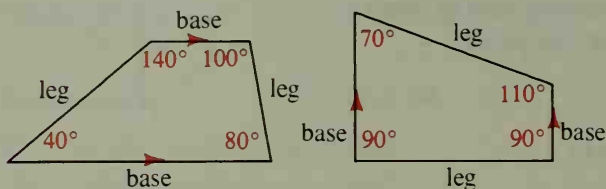


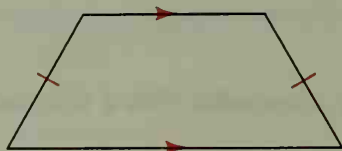
## 5-5 Trapezoids

A quadrilateral with exactly one pair of parallel sides is called a **trapezoid**. The parallel sides are called the **bases**. The other sides are **legs**.



Trapezoids

A trapezoid with congruent legs is called an **isosceles trapezoid**. If you fold any isosceles trapezoid so that the legs coincide, you will find that both pairs of *base angles* are congruent.



Isosceles trapezoid

A trapezoidal shape can be seen in the photograph. Is it isosceles?

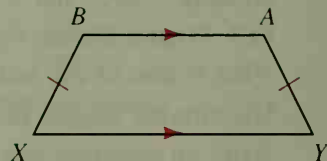


### Theorem 5-18

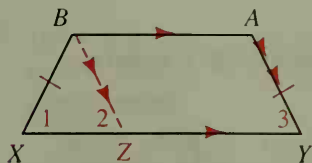
**Base angles of an isosceles trapezoid are congruent.**

Given: Trapezoid  $ABXY$  with  $\overline{BX} \cong \overline{AY}$

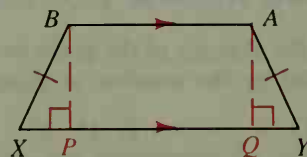
Prove:  $\angle X \cong \angle Y$ ;  $\angle B \cong \angle A$



**Plan for Proof:** Note that the diagram does not contain any parallelograms or congruent triangles that might be used. To obtain such figures, you could draw auxiliary lines. You could use either diagram below to prove the theorem.



Draw  $\overline{BZ} \parallel \overline{AY}$  so that  $ABZY$  is a  $\square$ .



Draw  $\overline{BP} \perp \overline{XY}$  and  $\overline{AQ} \perp \overline{XY}$ .  
Since  $\overline{BA} \parallel \overline{XY}$ ,  $BP = AQ$  by Theorem 5-8.