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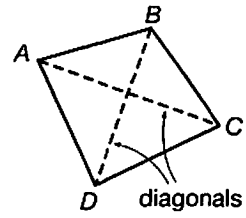
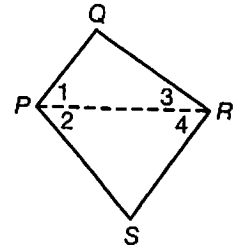
SKILL 8: Diagonals and Angles of Quadrilaterals

A corner point of a quadrilateral is called a **vertex** of the quadrilateral. A segment that joins two opposite **vertices** (plural of vertex) is called a **diagonal**. The diagonals of quadrilateral *ABCD* are $\overline{AC}$ and $\overline{BD}$.



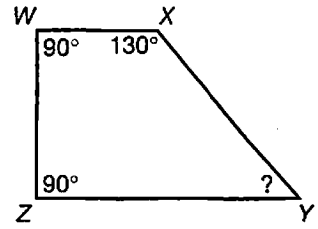
The sum of the four angle measures of a quadrilateral is always 360°. To see why, look at quadrilateral *PQRS*. The diagonal $\overline{PR}$ divides *PQRS* into two triangles. The sum of the angle measures of each triangle is 180°. From this you can see that the sum of the angle measures of *PQRS* is 180° + 180°, or 360°.



The sum of the angle measures of any quadrilateral is 360°.

Example

Find the measure of $\angle Y$ in quadrilateral *WXYZ*.



The sum of the angle measures of the quadrilateral is 360°.

$90° + 90° + 130° + m\angle Y = 360°$

$310° + m\angle Y = 360°$

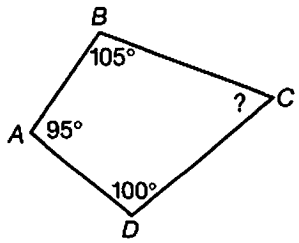
To find the measure of $\angle Y$, subtract 310° from each side.

So $m\angle Y = 360° - 310°$, which tells you that $m\angle Y = 50°$.

Guided Practice

Find the missing angle measures.

1.

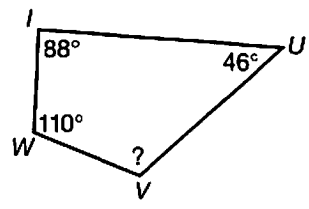


$105° + 95° + 100° + m\angle C = 360°$

_____ $+ m\angle C = 360°$

$m\angle C =$ _____

2.



$110° +$ _____ $+ 46° + m\angle V = 360°$

_____ $+ m\angle V = 360°$

$m\angle V =$ _____

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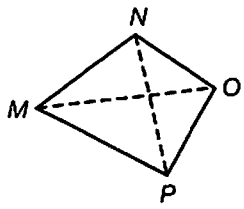
SKILL 8: Practice

Name the diagonals of each quadrilateral.

1. 

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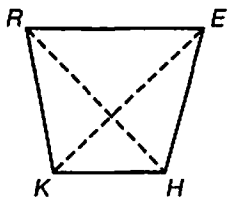
2. 

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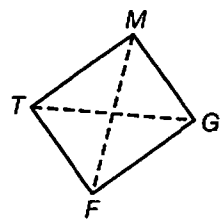
3. 

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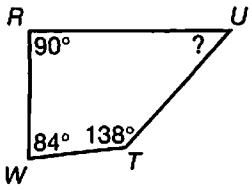
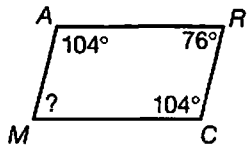
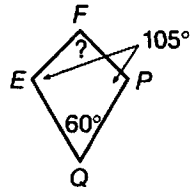
Find the missing angle measures.

4. 

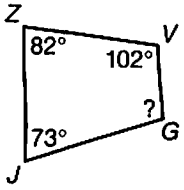
$m\angle U =$ _____

5. 

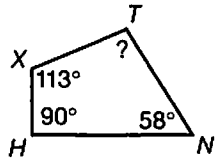
$m\angle M =$ _____

6. 

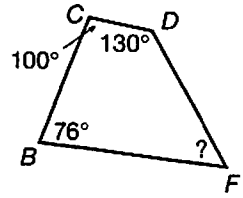
$m\angle F =$ _____

7. 

$m\angle G =$ _____

8. 

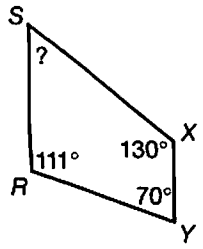
$m\angle T =$ _____

9. 

$m\angle F =$ _____

10. What is the measure of $\angle S$?

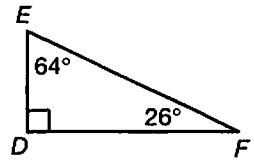
Skill 8



A 38°
B 49°
C 59°
D 69°

11. What kind of triangle is triangle *DEF*?

Skill 7



F acute
G isosceles
H obtuse
J right