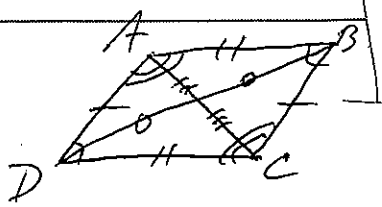
Name _____

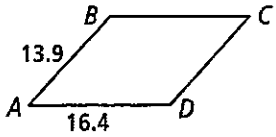
6-3 Additional Practice

Properties of Parallelograms

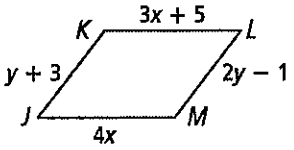


Find the stated lengths in each parallelogram.

1. BC
2. CD

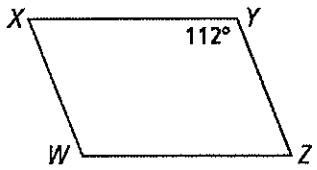


3. JK
4. KL

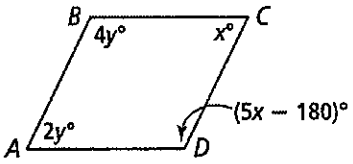


Find the stated angle measures in each parallelogram.

5. $\angle W$
6. $\angle Z$

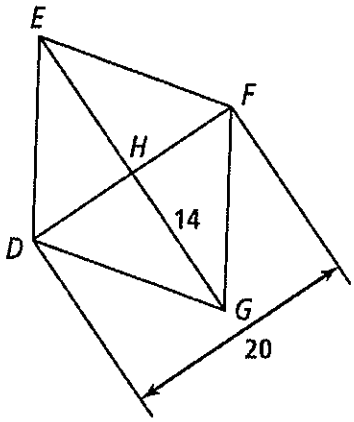


7. $\angle A$
8. $\angle D$

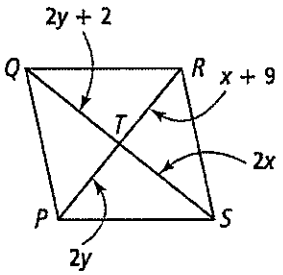


Find the stated lengths in each parallelogram.

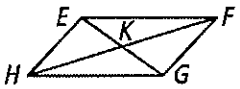
9. EG
10. DH



11. RT
12. QS

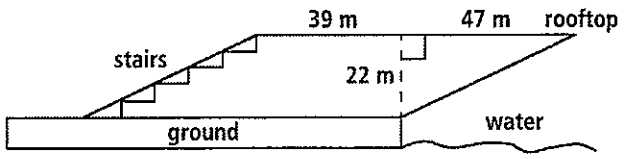


13. **Understand** Complete the proof. **Given:** Parallelogram $EFGH$ **Prove:** $\triangle EFK \cong \triangle GHK$



Statements	Reasons
1. $EFGH$ is a parallelogram.	1.
2.	2. The diagonals of a parallelogram bisect each other.
3. $\overline{EF} \cong \overline{GH}$	3.
4.	4. SSS

14. **Apply** The Dockland Building in Hamburg, Germany is built in the shape of a parallelogram. What is the length of the flight of stairs that runs from the ground to the rooftop? Round your answer to the nearest meter.

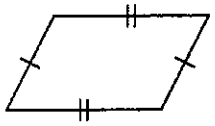


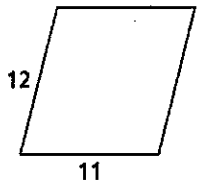
Name _____

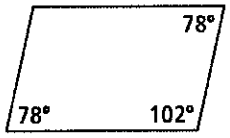
6-4 Additional Practice

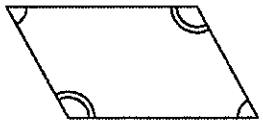
Proving a Quadrilateral Is a Parallelogram

Is there enough information to prove each quadrilateral is a parallelogram? Explain.

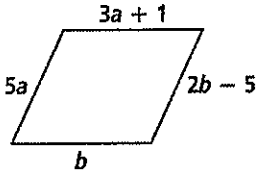
1. 

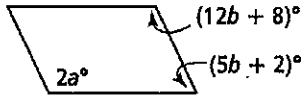
2. 

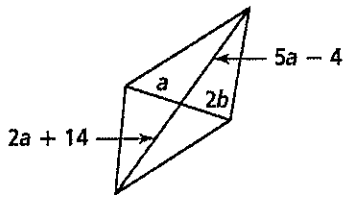
3. 

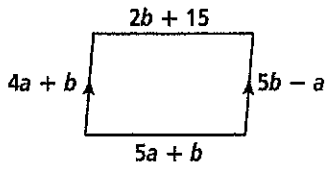
4. 

For what values of *a* and *b* is each quadrilateral a parallelogram?

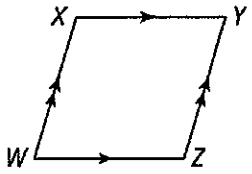
5. 

6. 

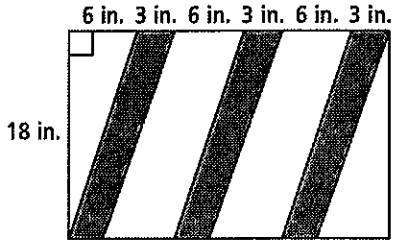
7. 

8. 

9. **Understand** Margaret says there is not enough information to show that *WXYZ* is a parallelogram. Explain why Margaret is incorrect.



10. **Apply** A hazard sign has 3 identical parallelogram-shaped stripes as shown. Charles must outline each stripe with reflective tape. Is one roll of 144 inches of tape enough to finish the job? Explain.



4/15

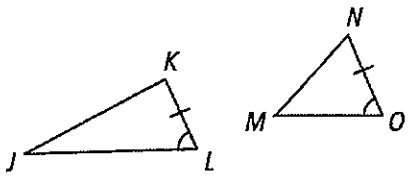
Name _____

7-3 Additional Practice

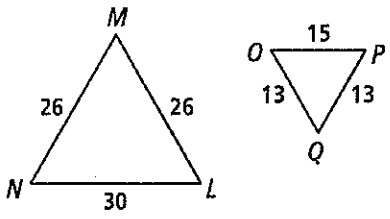
Proving Triangles Similar

For Exercises 1–4, if the two triangles are similar, state why they are similar. If not, state that they are not similar.

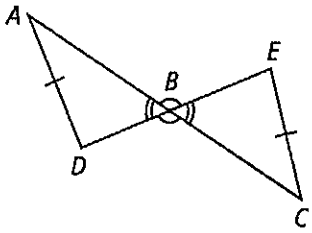
1.



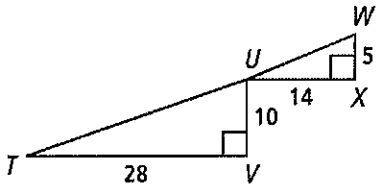
2.



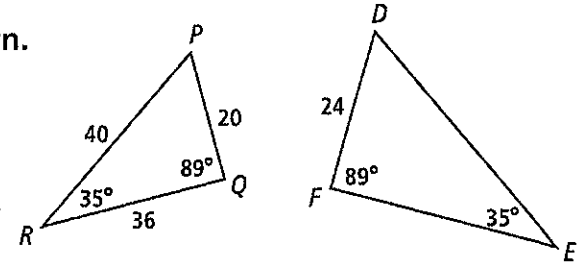
3.



4.



For Exercises 5 and 6, use the triangles shown.

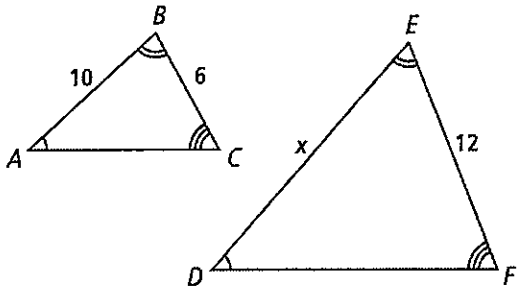


5. What is *FE*?

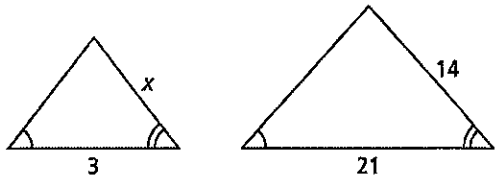
6. What is *DE*?

For Exercises 7 and 8, what is the value of *x*?

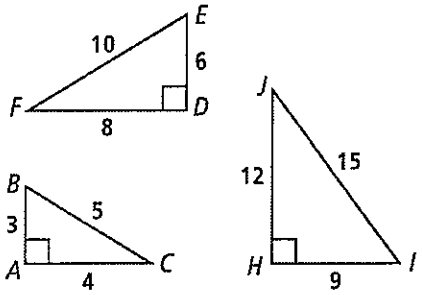
7.



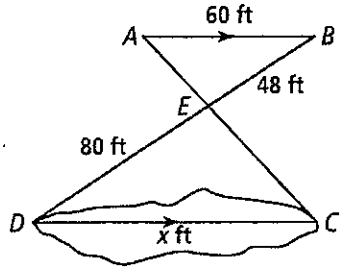
8.



9. Are triangles *ABC*, *DEF*, and *HIJ* similar? Explain.



10. The width of the pond shown is *x* ft. What is the value of *x*?

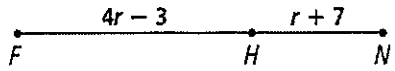


4/15

Name _____

Mid-Year Assessment

1. If $FN = 29$, what is the value of r?



Ⓐ 4

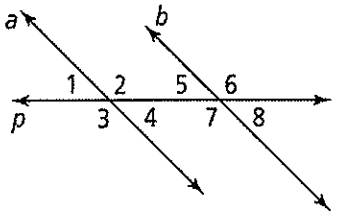
Ⓑ 5

Ⓒ 6

Ⓓ 7

---

2. Line p intersects lines a and b. $a \parallel b$. By which theorem is $\angle 1 \cong \angle 8$?



Ⓐ Alternate Exterior Angles Theorem

Ⓑ Alternate Interior Angles Theorem

Ⓒ Corresponding Exterior Angles Theorem

Ⓓ Corresponding Interior Angles Theorem

---

3. What is the distance between points $A(3, 12)$ and $B(6, 15)$? Round to the nearest tenth.

4. Which could be the first step of an indirect proof of the statement below? Select all that apply.

If the sum of the interior angles of a figure is 180°, then the figure is a triangle.

Ⓐ If a figure is not a triangle, then the sum of the interior angles is not 180°.

Ⓑ If the sum of the interior angles of a figure is 180°, then the figure is a triangle.

Ⓒ Assume that the figure is not a triangle and the sum of the interior angles is not 180°.

Ⓓ Assume that the sum of the interior angles of a figure is 180° and the figure is not a triangle.

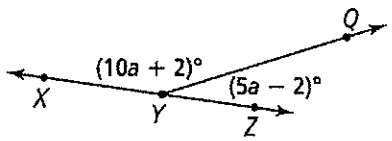
---

5. Fill in the blanks.

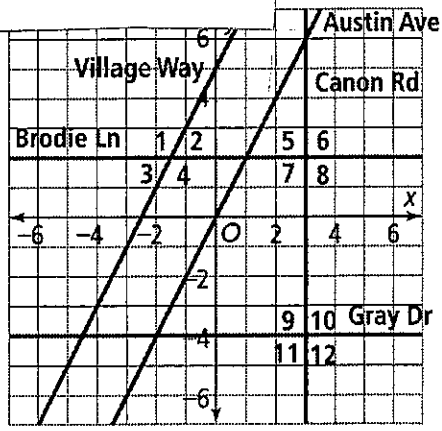
Parallel lines exist in the same _____, but they do not _____.

---

6. Points X, Y, and Z are collinear. What is $m\angle XYQ$?



the map shown.



7. The city plans a new road that will be parallel to Brodie Lane. What is the slope of the new road?

8. Let $m\angle 6 = x°$. Which angles have a measure of $180° - x°$?

Ⓐ $\angle 1$ Ⓒ $\angle 8$

Ⓑ $\angle 3$ Ⓓ $\angle 12$

9. What is the equation of a line that is perpendicular to the line $y = -3x + 2$ and passes through the point (6, 8)?

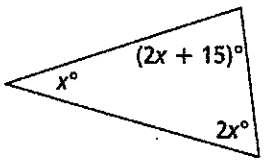
Ⓐ $y = 3x + 2$

Ⓑ $y = 3x - 10$

Ⓒ $y = \frac{1}{3}x + 2$

Ⓓ $y = \frac{1}{3}x + 6$

10. What is the value of x?



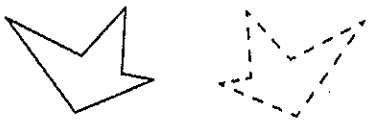
Ⓐ 24

Ⓑ 33

Ⓒ 72

Ⓓ 75

11. Which rigid motion maps the solid-line figure onto the dotted-line figure?



12. Quadrilateral $ABCD$ is rotated 90° clockwise to produce $A'B'C'D'$. Is each statement true?

	Yes	No
$AB = A'B'$	❑	❑
If $\overline{AC} \parallel \overline{BD}$, then $\overline{A'C'} \parallel \overline{B'D'}$.	❑	❑
$m\angle ABC < m\angle A'B'C'$	❑	❑

13. Which word has reflectional symmetry across a horizontal line?

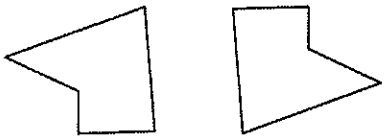
Ⓐ BOOK

Ⓑ LOOK

Ⓒ NOOK

Ⓓ ROOK

14. Which rigid motion describes the preimage and image shown? Select all that apply.



Ⓐ rotation of 180°

Ⓑ glide reflection

Ⓒ rotation of 90°, and then reflection across vertical line

Ⓓ reflection across horizontal line, and then rotation of 90°

Ⓔ reflection across vertical line, and then reflection across horizontal line

15. The rule $T_{\langle -3,\ 1\rangle}$ is applied to point (2, –7). In which part of the coordinate system is the translated point located?

Ⓐ quadrant I

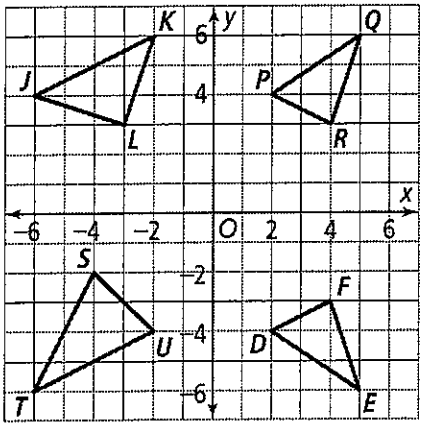
Ⓑ quadrant II

Ⓒ quadrant III

Ⓓ quadrant IV

---

16. Which triangle is congruent to $\triangle PQR$?



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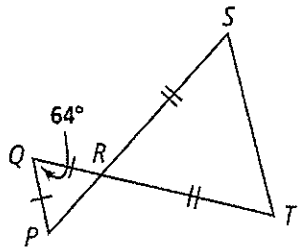
17. What is $m\angle RST$?



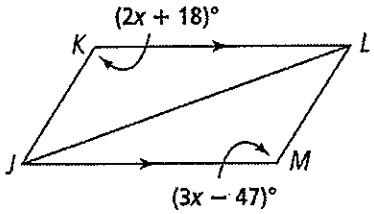
Ⓐ 58°

Ⓑ 61°

Ⓒ 116°

Ⓓ 122°

18. What value of x would support the conclusion that $\triangle JKL \cong \triangle JML$ by AAS?



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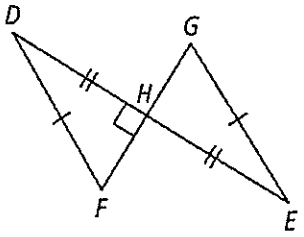
19. By which theorem can you conclude $\triangle DHF \cong \triangle EHG$?



Ⓐ ASA

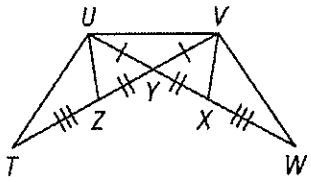
Ⓑ HL

Ⓒ SAS

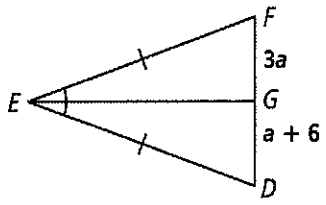
Ⓓ SSS

---

20. Which theorem of triangle congruence shows that $\triangle TUV \cong \triangle WVU$?



For Items 21 and 22, use $\triangle DEF$.



21. What is DF?

22. Which of the following describes $\overline{EG}$? Select all that apply.

Ⓐ median

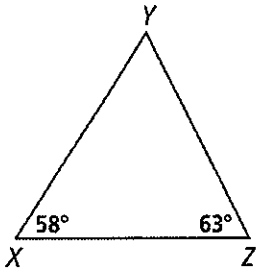
Ⓑ angle bisector

Ⓒ altitude

Ⓓ perpendicular bisector

---

23. Which lists the sides of $\triangle XYZ$ from shortest to longest?



Ⓐ $\overline{YZ}, \overline{XZ}, \overline{XY}$

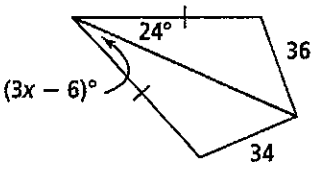
Ⓑ $\overline{XY}, \overline{XZ}, \overline{YZ}$

Ⓒ $\overline{XZ}, \overline{YZ}, \overline{XY}$

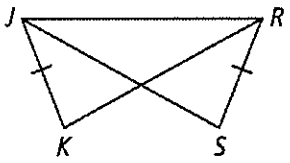
Ⓓ $\overline{XY}, \overline{YZ}, \overline{XZ}$

---

24. What is the range of possible values of x?



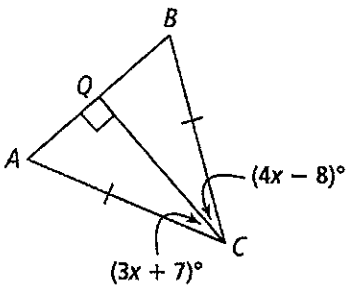
25. Given $KR < JS$, complete the comparison between $m\angle KJR$ and $m\angle SRJ$.



$m\angle KJR$ _____ $m\angle SRJ$

---

26. Is each statement true for $\triangle ABC$?



	Yes	No
$\overline{CQ}$ bisects $\angle ACB$.	❑	❑
$\overline{CQ}$ is the perpendicular bisector of $\overline{AB}$.	❑	❑
$m\angle QCB = 26$	❑	❑

---

27. A triangle has vertices at (–4, 0), (2, 8), and (8, 0). Complete the table.

	x	y
coordinates of centroid		
coordinates of circumcenter		
coordinates of orthocenter		

28. A triangle has two sides with lengths 31 centimeters and 39 centimeters. Which best describes the length of the third side?

Ⓐ less than 8 cm

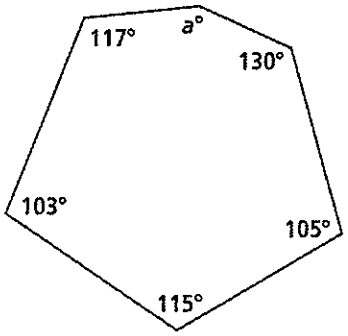
Ⓑ greater than 70 cm

Ⓒ less than 8 cm or greater than 70 cm

Ⓓ greater than 8 cm and less than 70 cm

---

29. What is the value of a?



Ⓐ 113

Ⓑ 150

Ⓒ 210

Ⓓ 330

---

30. What is the measure of an interior angle of a regular 16-gon?

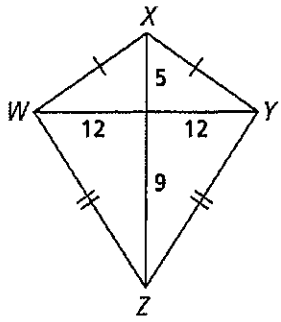
Ⓐ 16.0°

Ⓑ 22.5°

Ⓒ 157.5°

Ⓓ 205.7°

31. What is the perimeter of $\triangle XYZ$?



Ⓐ 28

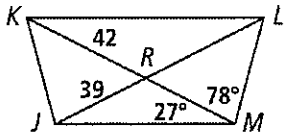
Ⓑ 42

Ⓒ 50

Ⓓ 54

---

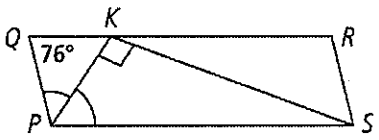
32. Quadrilateral $JKLM$ is an isosceles trapezoid. Match each length or angle measure to the correct value.



a. $m\angle JKL$	**i.** 81
b. LM	**ii.** 75°
c. $m\angle KJM$	**iii.** 105°
d. JL	**iv.** not enough information

---

33. Quadrilateral $PQRS$ is a parallelogram. What is $m\angle KSP$?



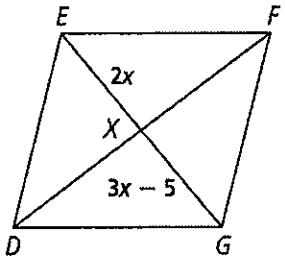
Ⓐ 38°

Ⓑ 52°

Ⓒ 76°

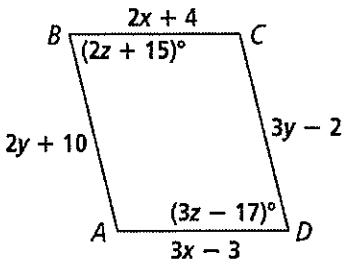
Ⓓ 104°

34. Given parallelogram *DEFG*, if $DF = 5x + 1$, what is *XF*?



Ⓐ 10
Ⓑ 13
Ⓒ 20
Ⓓ 26

For Items 35 and 36, use quadrilateral *ABCD*.



35. What $m\angle DAB$ would show *ABCD* is a parallelogram?

36. What values of *x* and *y* would show *ABCD* is a parallelogram?

---

37. Is the statement true for all rectangles?

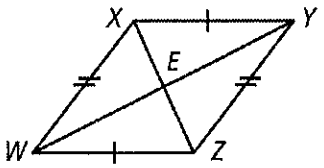
	Yes	No
Diagonals are congruent.	❑	❑
Diagonals bisect opposite angles.	❑	❑
Diagonals are perpendicular.	❑	❑

38. Which expression represents the perimeter of a rhombus with diagonal lengths 8*a* and 10*a*?

Ⓐ $3\sqrt{a}$
Ⓑ $a\sqrt{41}$
Ⓒ $12\sqrt{a}$
Ⓓ $4a\sqrt{41}$

---

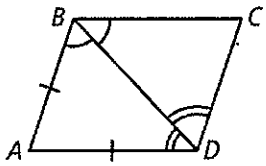
39. Which additional piece of information would show that quadrilateral *WXYZ* is a rhombus?



Ⓐ $EX = EZ$
Ⓑ $WX \parallel YZ$
Ⓒ $XZ \perp WY$
Ⓓ $XY = WZ$

---

40. Which is the most precise description of quadrilateral *ABCD*?



Ⓐ rhombus
Ⓑ rectangle
Ⓒ quadrilateral
Ⓓ parallelogram