

**LESSON**  
**6-5**

**Problem Solving**  
**Conditions for Special Parallelograms**

1. An amusement park has a rectangular observation deck with walkways above the bungee jumping and sky jumping. The distance from the center of the deck to points  $E$ ,  $F$ ,  $G$ , and  $H$  is 15 meters. Explain why  $EFGH$  must be a rectangle.

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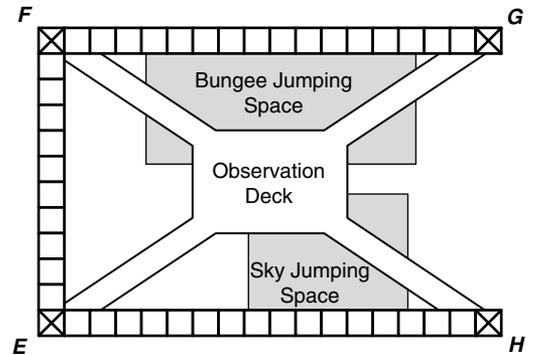
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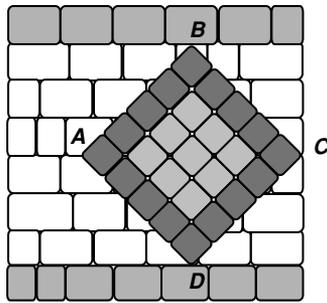
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2. In the mosaic,  $\overline{AB} \parallel \overline{CD}$  and  $\overline{BC} \parallel \overline{DA}$ . If  $AB = 4$  inches and  $BC = 4$  inches, can you conclude that  $ABCD$  is a square? Explain.




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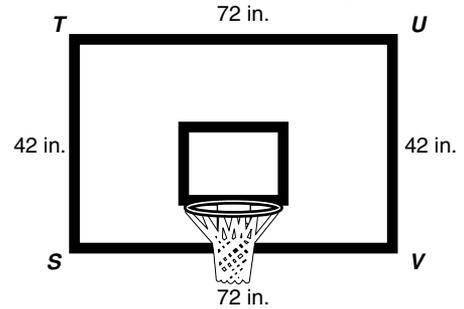


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3. If  $\overline{TV} \cong \overline{US}$ , explain why the basketball backboard must be a rectangle.




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**Choose the best answer.**

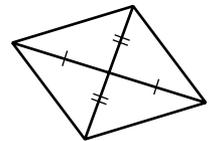
4. The vertices of a parallelogram are  $N(0, -4)$ ,  $P(6, -1)$ ,  $Q(4, 3)$ , and  $R(-2, 0)$ . Classify the parallelogram as specifically as possible.

- A rectangle only
- B square
- C rhombus only
- D quadrilateral

6. In parallelogram  $KLMN$ ,  $m\angle L = (4w + 5)^\circ$ . Choose the value of  $w$  that makes  $KLMN$  a rectangle.

- A 90
- B 85
- C 43.75
- D 21.25

5. Choose the best description for the quadrilateral.



- F parallelogram
- G parallelogram and rectangle
- H parallelogram and rhombus
- J parallelogram and square

7. The coordinates of three vertices of quadrilateral  $ABCD$  are  $A(3, -1)$ ,  $B(10, 0)$ , and  $C(5, 5)$ . For which coordinates of  $D$  will the quadrilateral be a rhombus?

- F  $(-1, 4)$
- G  $(-2, 4)$
- H  $(-1, 3)$
- J  $(-2, 3)$