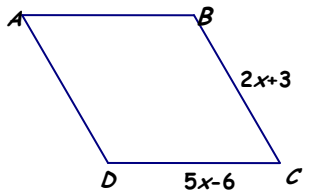
Trapezoid and Rhombus Properties

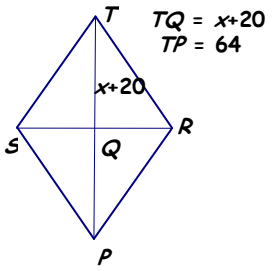
1. Which of the following is NOT true for rhombuses?

A. A quadrilateral is a rhombus if and only if it has four congruent sides.
B. A parallelogram is a rhombus if and only if its diagonals are perpendicular.
C. A parallelogram is a rhombus is and only if each diagonals bisects a pair of opposite angles.
D. A parallelogram is a rhombus if and only if its diagonals are congruent.

2. *ABCD* is a rhombus. What is the value of *x*?



3. *STRP* is a rhombus. Find the value of *x*.

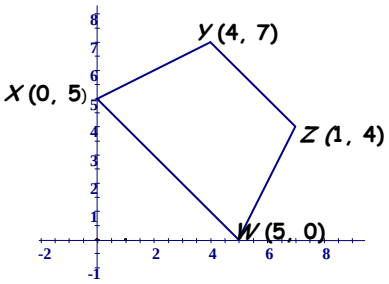


4. Which type of a quadrilateral has both pairs of opposite sides parallel, the diagonals are perpendicular, and the diagonals bisect each other?

A. Parallelogram B. Rectangle
C. Rhombus D. Kite

5. What is the difference between a trapezoid and an isosceles trapezoid?

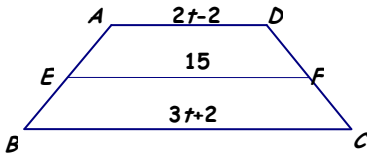
6. Give mathematical proof that *WXYZ* is a trapezoid.



7. A non-isosceles trapezoid has one base of length 25 and a midsegment length of 28. What is the length of the second base?

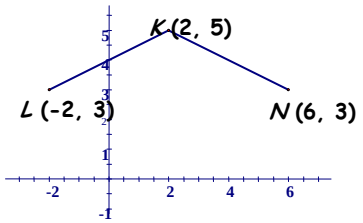
8. An isosceles trapezoid has one base of length $2x+4$ and a second base of $3x-8$. If the length of the midsegment is 8, find the value of *x*.

9. In trapezoid *ABCD*, $EF = 15$. What is the value of *t*?



A. 6 B. 5
C. 4 D. 3

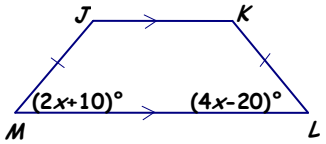
10. Two segments of rhombus *KLMN* are shown below.



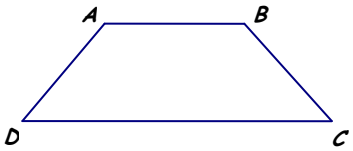
What is the coordinate pair of point *M*?

11. What kind of quadrilateral is *ABCD*? Justify your answer mathematically. *A*(1, 1), *B*(5, 1), *C*(4, 8) and *D*(2, 8).

12. Find the value of *x*.

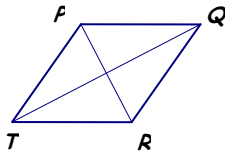


13. If *ABCD* is an isosceles trapezoid and $m\angle ABC = 115°$, find the measures of the other angles of *ABCD*.



14. **Given**: *PQRT* is a rhombus

Prove: $\overline{PR}$ bisects $\angle TPQ$



15. *ABCD* is an isosceles trapezoid. Find the value of *x*.