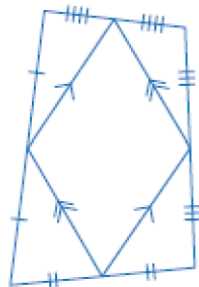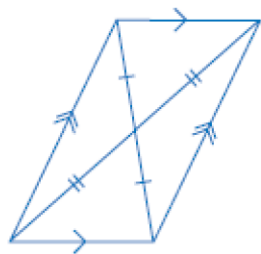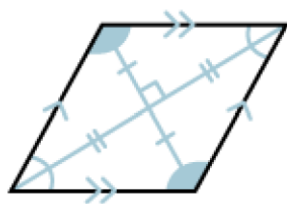## 7.5: Midpoints and Diagonals In Quadrilaterals

1. Joining the midpoints of the sides of **any** quadrilateral produces a parallelogram.

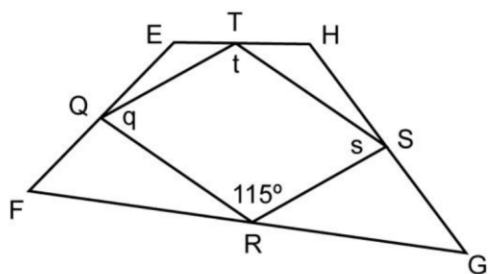2. The diagonals of a parallelogram bisect each other.

3. The diagonals of a rhombus bisect each other at 90°.

Ex. 1:

Given that the points Q, T, S, and R are midpoints of their respective sides, find the measures of the indicated angles.

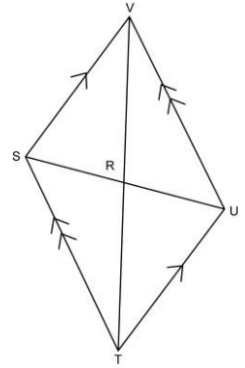**Ex. 2:**

Calculate the length of each line segment given that RU = 4.2 cm and RT = 8 cm.

a) SR   b) SU   c) VR
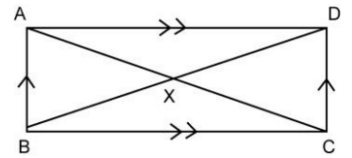

Ex. 3:

Calculate the length of each line segment given that AC = 15.2 m and XD = 5.6 m.

a) AX   b) XC

Ex. 4: Explain why each statement is true or draw a counterexample to show it is false.

a) The diagonals of a rectangle are perpendicular to one another.

b) The diagonals of a square are perpendicular to one another.