

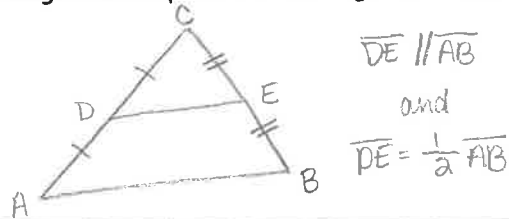
Honors Geometry
Section 5.1 Notes
Midsegment of Triangles

Name: Key

Look in your book on pages 285-287 to help you answer each of the following questions.

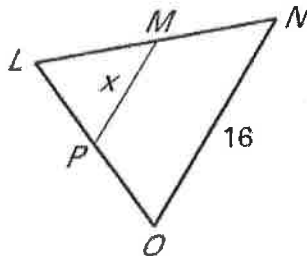
1. What is a midsegment of a triangle?
A segment connecting the midpoints of two sides of a triangle.

2. Draw a fully labeled picture of a midsegment in a triangle and explain the midsegment theorem.



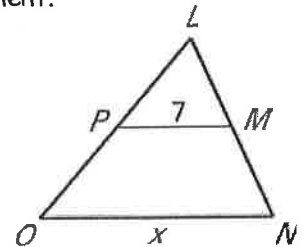
2. Find x if \overline{MP} is a midsegment.

$x = 8$

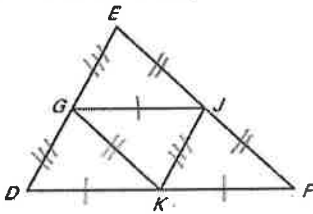


3. Find x if \overline{MP} is a midsegment.

$x = 14$



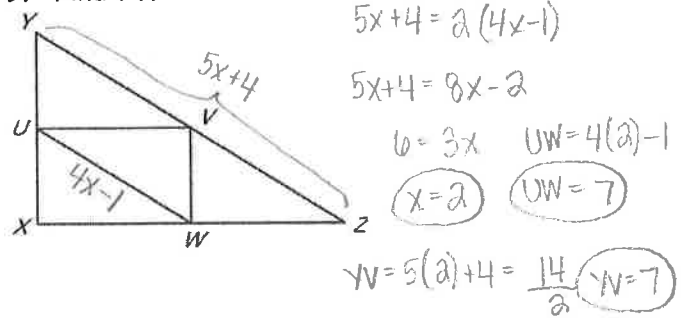
In $\triangle DEF$, $\overline{EJ} \cong \overline{JF}$, $\overline{DK} \cong \overline{KF}$, and $\overline{GE} \cong \overline{DG}$. Complete each statement.



4. $\overline{GJ} \parallel$? \overline{DF}
5. $\overline{EJ} \cong$? \cong ? \overline{JF} , \overline{GK}
6. $\overline{DE} \parallel$? \overline{JK}
7. $\overline{GJ} \cong$? \cong ? \overline{DK} , \overline{KF}

Use the diagram of $\triangle XYZ$ where U , V , and W are the midpoints of the sides.

8. If $UW = 4x - 1$ and $YZ = 5x + 4$, what is UW ?
9. Find YV .

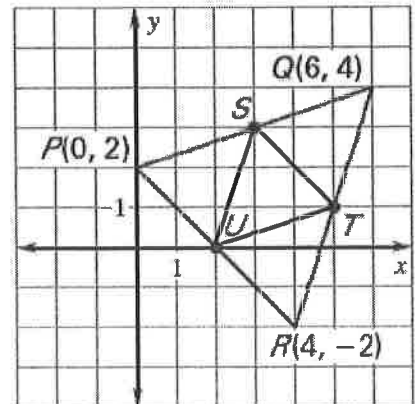


10. Find the coordinates of the vertices of $\triangle SUT$.
What are these vertices in relation to $\triangle PQR$?

$S = (3, 3)$ $T = (5, 1)$ $U = (2, 0)$
midpoints of sides

S: (3, 3) T: (5, 1) U: (2, 0)

11. Find the slopes of \overline{ST} and \overline{PR} . What do you notice?
 $\overline{ST} = \frac{2}{2} = 1$ $\overline{PR} = \frac{1}{1} = 1$ Same



12. Find the length of \overline{ST} and \overline{PR} .

$\overline{ST} = \sqrt{(3-5)^2 + (3-1)^2} = \sqrt{8}$ $\overline{PR} = \sqrt{(4-0)^2 + (-2-2)^2} = \sqrt{32}$

Name the sides that are parallel to the given side.

1. \overline{AB}

\overline{ZY}

2. \overline{AC}

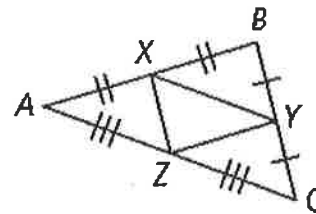
\overline{XY}

3. \overline{CB}

\overline{ZX}

4. \overline{XY}

\overline{AC}



Points M , N , and P are the midpoints of the sides of $\square QRS$. $QR = 30$, $RS = 30$, and $SQ = 18$.

5. Find MN .

9

6. Find MQ .

15

7. Find MP .

15

8. Find PS .

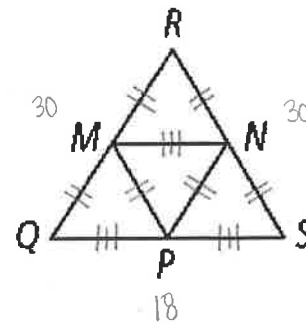
9

9. Find PN .

15

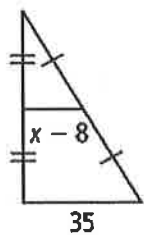
10. Find RN .

15



Find the value of x .

11.



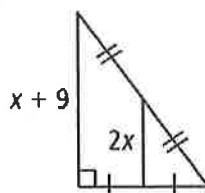
$$35 = 2(x - 8)$$

$$35 = 2x - 16$$

$$2x = 51$$

$$x = 25.5$$

12.



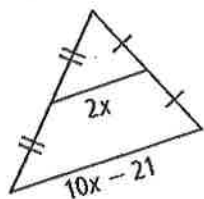
$$x + 9 = 2(2x)$$

$$x + 9 = 4x$$

$$9 = 3x$$

$$x = 3$$

13.



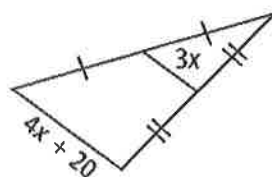
$$10x - 21 = 2(2x)$$

$$10x - 21 = 4x$$

$$6x = 21$$

$$x = 3.5$$

14.



$$4x + 20 = 2(3x)$$

$$4x + 20 = 6x$$

$$20 = 2x$$

$$x = 10$$