

Notes 5-3: Theorems Involving Parallel Lines

Distance from a line to a line:

Theorem 5-8: If two lines are parallel,

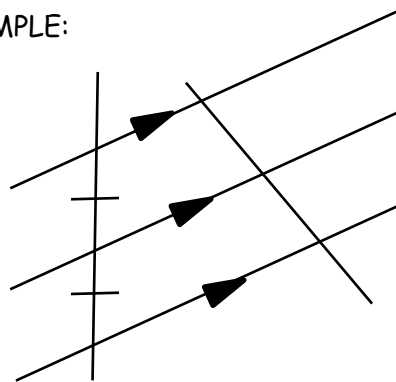
Diagram:

Equidistant: _____

Theorem 5-9: If three parallel lines

Diagram:

EXAMPLE:



- 1) If $RS = 12$, then $ST =$ _____ .
- 2) If $AB = 8$, then $BC =$ _____ .
- 3) If $AC = 20$, then $AB =$ _____ .
- 4) If $AC = 10x$, then $BC =$ _____ .

Theorem 5-10: A line that contains the midpoint of one side of a triangle _____

Diagram:

EXAMPLE: Solve for x.

Theorem 5-11: A segment that joins the midpoints of two sides of a triangle:

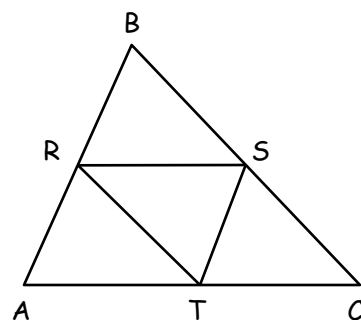
- 1) _____
- 2) _____

EXAMPLE: Solve for x and y .

Diagram:

EXAMPLE: Given R , S and T are midpoints of the sides of $\triangle ABC$. For #1 - 3, complete the chart.

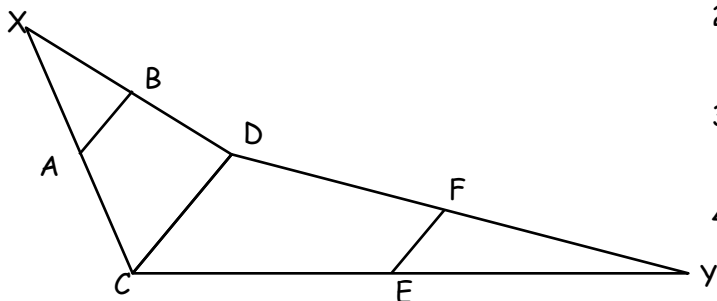
	AB	BC	AC	ST	RT	RS
1)	12	14	18			
2)		15	22	10		
3)	10				9	7.8



- 4) If $RS = 2x + 3$, then $AC =$ _____.
- 5) If $AB = 14y - 10$, then $TS =$ _____.
- 6) If $RT = 12z - 8$, then $BS =$ _____.
- 7) Name all triangles congruent to $\triangle BRS$.
- 8) If the perimeter of $\triangle RST = 12$, find the perimeter of $\triangle ABC$.

Answer the following questions.

Points A , B , E , and F are the midpoints of XC , XD , YC , and YD .



1. If $CD = 24$, then $AB =$ _____ and $EF =$ _____.
2. If $AB = k$, then $CD =$ _____ and $EF =$ _____.
3. If $AB = 5x - 8$ and $EF = 3x$, then $x =$ _____.
4. If $CD = 8x$ and $AB = 3x + 2$, then $x =$ _____.