

Quadrilaterals

In Exercises 1-6 $ABCD$ is a parallelogram. Complete.

- If $m\angle ADC = 92$, then $m\angle ABC =$ _____ and $m\angle DAB =$ _____.
- If $BD = 20$, then $BE =$ _____.
- If $AB = 9x - 2$ and $DC = 6x + 4$, then $x =$ _____.
- If $AE = 9$ and $AC = 5x + 3$, then $x =$ _____.
- If $ABCD$ is a rectangle and $DE = 13.4$, then $AE =$ _____.
- If $ABCD$ is a rhombus, then $m\angle AED =$ _____.

In Exercises 7-10 information is given about quadrilateral $EFGH$. What additional information is needed to prove $EFGH$ is a parallelogram?

- $\angle EHG \cong \angle EFG$ _____
- $\overline{EH} \parallel \overline{FG}$ _____
- $\overline{EF} \cong \overline{HG}$ _____
- I is the midpoint of \overline{EG} . _____

In Exercises 11-13, D is the midpoint of \overline{AB} . Complete.

- If E is the midpoint of \overline{BC} and $AC = 26$, then $\angle BDE \cong \angle$ _____ and $DE =$ _____.
- If $\overline{DE} \parallel \overline{AC}$ and $BE = 12$, then $BC =$ _____.
- If $\overline{BE} \cong \overline{EC}$, then $ADEC$ is a(n) _____.

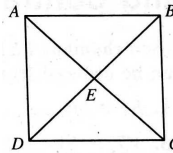
In Exercises 14-17, M and N are the midpoints of \overline{TP} and \overline{RA} , respectively, and $TRAP$ is a trapezoid. Complete.

- \overline{MN} is the _____ of $TRAP$.
- If $\overline{TP} \cong \overline{RA}$, then $TRAP$ is a(n) _____.
- If $MN = 16$ and $TR = 14$, then $PA =$ _____.
- If $\overline{TP} \cong \overline{RA}$ and $m\angle P = 80$, then $m\angle A =$ _____ and $m\angle TMN =$ _____.

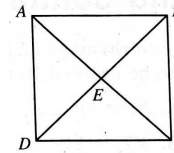
Give the most descriptive name for quadrilateral $QUAD$.

- $\overline{QU} \parallel \overline{DA}$; $\overline{QD} \parallel \overline{UA}$; $\overline{QD} \perp \overline{DA}$ _____
- $\overline{QU} \parallel \overline{DA}$; $\overline{QU} \cong \overline{UA} \cong \overline{DA}$ _____
- $\overline{QU} \parallel \overline{DA}$; $\overline{QD} \cong \overline{UA}$; $m\angle Q = m\angle U = 115$ _____

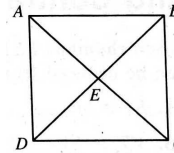
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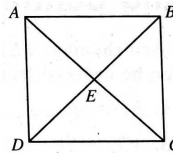
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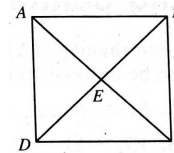
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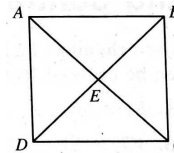
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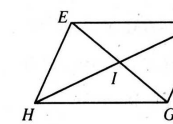
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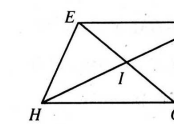
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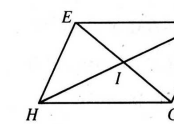
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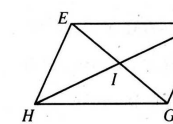
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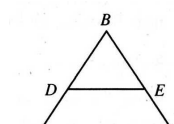
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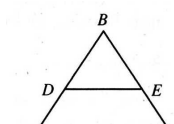
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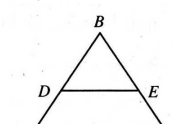
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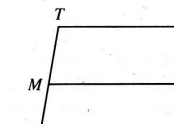
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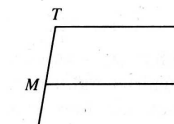
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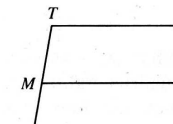
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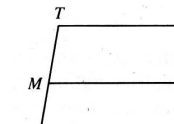
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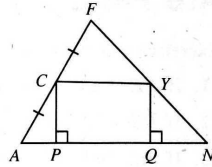
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Theorems Involving Parallel Lines

In Exercises 1-4 C is the midpoint of \overline{FA} , and \overline{CP} and \overline{YQ} are perpendicular to \overline{AN} . Classify each statement as true or false.

- If Y is the midpoint of \overline{FN} , then $\overline{CY} \parallel \overline{AN}$. _____
- $CY = \frac{1}{2}AN$ _____
- If $\overline{CY} \parallel \overline{AN}$, then Y is the midpoint of \overline{FN} . _____
- If $\overline{CY} \parallel \overline{AN}$, then $CP = YQ$. _____



Exs. 1-4

In Exercises 5 and 6 M and N are the midpoints of \overline{AB} and \overline{CB} , respectively. Find the values of x and y .

5. $x = \underline{\hspace{2cm}}$
 $y = \underline{\hspace{2cm}}$

6. $x = \underline{\hspace{2cm}}$
 $y = \underline{\hspace{2cm}}$

In Exercises 7-13 points M , N , and P are the midpoints of \overline{XZ} , \overline{ZY} , and \overline{XY} , respectively.

- If $XY = 30$, then $MN = \underline{\hspace{2cm}}$.
- If $MP = 13.5$, then $YZ = \underline{\hspace{2cm}}$.
- If $MZ = 6$, then $NP = \underline{\hspace{2cm}}$.
- If $YZ = 4a$, then $MP = \underline{\hspace{2cm}}$.
- If $m\angle YNP = 84$, then $m\angle Z = \underline{\hspace{2cm}}$.
- If $m\angle ZMN = 70$ and $m\angle ZNM = 55$, then $m\angle X = \underline{\hspace{2cm}}$.
- If the perimeter of $\triangle MNP = 36$, then the perimeter of $\triangle XYZ = \underline{\hspace{2cm}}$.

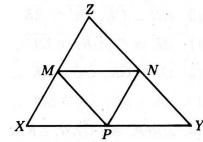
In Exercises 14-17 \overline{AW} , \overline{BX} , \overline{CY} , and \overline{DZ} are parallel and $\overline{WX} \cong \overline{XY} \cong \overline{YZ}$.

- If $AD = 21$, then $CD = \underline{\hspace{2cm}}$.
- If $BD = 32$, then $BC = \underline{\hspace{2cm}}$.
- If $AC = 5x - 8$ and $AB = x + 5$, then $x = \underline{\hspace{2cm}}$.
- If $BC = 7x$ and $AD = 9x + 24$, then $x = \underline{\hspace{2cm}}$.

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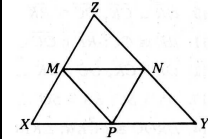
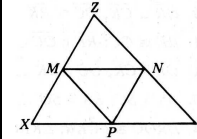
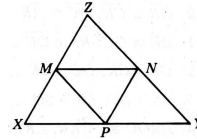
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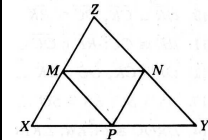
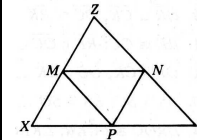
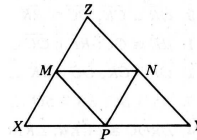
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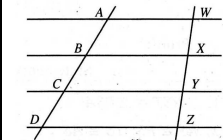
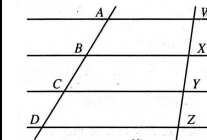
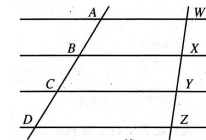
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