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الملف حل أسئلة وفق الهيكل الوزاري ريفيل
موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف التاسع العام ⇦ رياضيات ⇦ الفصل الثالث

روابط مواقع التواصل الاجتماعي بحسب الصف التاسع العام			
روابط مواد الصف التاسع العام على تلغرام			
التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب الصف التاسع العام والمادة رياضيات في الفصل الثالث	
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2	حل مراجعة وفق الهيكل الوزاري ريفيل
3	مراجعة أسئلة وفق الهيكل الوزاري ريفيل
4	أسئلة الامتحان النهائي
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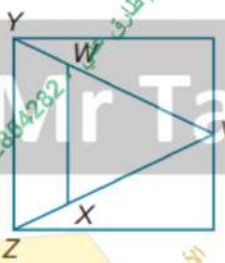
Part 1

PROOF Write a two-column proof to prove each geometric relationship.

3. If $\overline{VZ} \cong \overline{VY}$ and $\overline{WY} \cong \overline{XZ}$, then $\overline{VW} \cong \overline{VX}$.



Proof:

Statements	Reasons
1. $\overline{VZ} \cong \overline{VY}$ and $\overline{WY} \cong \overline{XZ}$	1. Given
2. $VZ = VY$ and $WY = XZ$	2. Definition of $\cong$ segments
3. $VZ = VX + XZ$ and $VY = VW + WY$	3. Segment Addition Postulate
4. $VX + XZ = VW + WY$	4. Substitution Property
5. $VX + WY = VW + WY$	5. Substitution Property
6. $VX = VW$	6. Subtraction Property of Equality
7. $VW = VX$	7. Symmetric Property of Equality
8. $\overline{VW} \cong \overline{VX}$	8. Definition of $\cong$ segments

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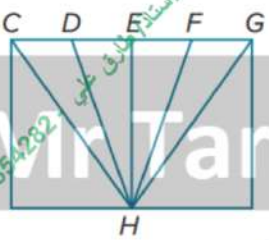
4. If E is the midpoint of $\overline{DF}$ and $\overline{CD} \cong \overline{FG}$, then $\overline{CE} \cong \overline{EG}$.



Proof:

Statements	Reason
1. E is the midpoint of $\overline{DF}$ and $\overline{CD} \cong \overline{FG}$	1. Given
2. $DE = EF$	2. Definition of midpoint
3. $CD = FG$	3. Definition of ≅ segments
4. $CD + DE = EF + FG$	4. Addition Property of Equality
5. $CE = CD + DE$ and $EG = EF + FG$	5. Segment Addition Postulate
6. $CE = EG$	6. Substitution Property
7. $\overline{CE} \cong \overline{EG}$	7. Definition of ≅ segments

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5. **FAMILY** Maria is 11 inches shorter than her sister Clara. Luna is 11 inches shorter than her brother Chad. If Maria is shorter than Luna, how do the heights of Clara and Chad compare? What else can be concluded if Maria and Luna are the same height?

Clara → x , Chad → y

$\text{Maria} = x - 11$

$\text{Luna} = y - 11$

$\text{Maria} < \text{Luna}$

$x - 11 < y - 11$

$+11 \quad +11$

$\boxed{x < y}$

---

6. **LUMBER** Byron works in a lumberyard. His boss just cut a dozen planks and asked Byron to double check that they are all the same length. The planks were numbered 1 through 12. Byron took out plank number 1 and checked that the other planks are all the same length as plank 1. He concluded that they must all be the same length. Explain how you know that plank 7 and plank 10 are the same length even though they were never directly compared to each other.

* Plank 7 Same length plank 1
* Plank 1 Same length plank 10
by Transitive Property
Plank 7 Same length Plank 10

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1 mile

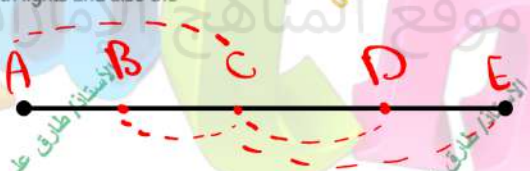
7. **NEIGHBORHOODS** Karla, Lola, and Mandy live in three houses that are on the same line. Lola lives between Karla and Mandy. Karla and Mandy live a mile apart. Is it possible for Lola's house to be a mile from both Karla's and Mandy's houses?

1 mile

impossible AS 1 mile between Karla, Mandy

8. **PROOF** Five lights, A, B, C, D, and E, are aligned in a row. The middle light is the midpoint of the segment between the second and fourth lights and also the midpoint of the segment between the first and last lights.

a. Draw a figure to illustrate the situation. See margin.



b. Complete this proof.

Given: C is the midpoint of $\overline{BD}$ and $\overline{AE}$.

Prove: $AB = DE$

Statement	Reason
1. C is the midpoint of $\overline{BD}$ and $\overline{AE}$.	1. Given
2. $BC = CD$ and $AC = CE$	2. Definition of Mid point.
3. $AC = AB + BC$, $CE = CD + DE$	3. Segment Addition posulate.
4. $AC - BC = AB$	4. Subtraction property.
5. $CE - CD = AB$	5. Substitution Property
6. $CE - CD = DE$	6. Subtraction property.
7. $AB = CE - CD$	7. Symmetric Property of Equality
8. $AB = DE$	8. Transitive property

Proof

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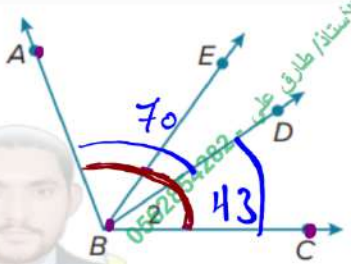
1. Find $m\angle ABC$ if $m\angle ABD = 70°$ and $m\angle DBC = 43°$.

measure

SOLUTION:

Total → 180°



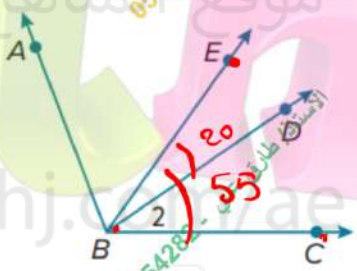
$m\angle ABD = 70 + 43$

$= \boxed{113°}$

2. If $m\angle EBC = 55°$ and $m\angle EBD = 20°$, find $m\angle 2$.

SOLUTION:

Small → نطرح



$m\angle 2 = 55 - 20$

$= \boxed{35}$

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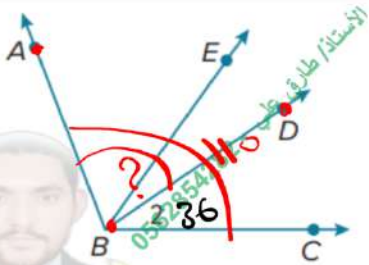
3. Find $m\angle ABD$ if $m\angle ABC = 110°$ and $m\angle 2 = 36°$.

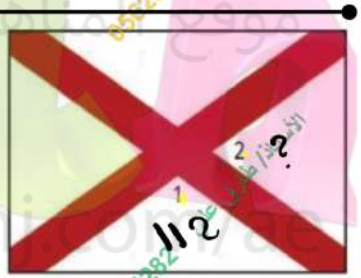
SOLUTION:



Small

$m\angle ABD = 110 - 36 = 74°$

4. FLAGS The Alabama state flag is white and has two diagonal red stripes. If the $m\angle 1 = 112°$, what is $m\angle 2$?



SOLUTION:

180° = مجموع الزاويتان المتجاورتان

$m\angle 2 = 180 - 112 = 68°$

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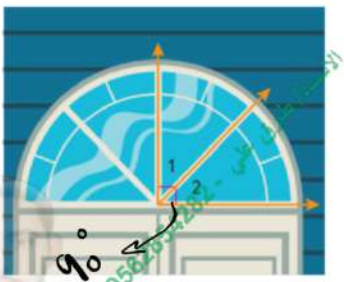
5. CONSTRUCTION Aaron has installed a new window above the entrance of an office building. If $m\angle 2 = 44°$, what is $m\angle 1$?

SOLUTION:



$m\angle 1 = 90 - 44$

$= 46°$

Identify each of the following using the figure shown. Assume lines and planes that appear to be parallel or perpendicular are parallel or perpendicular, respectively.

1. three segments parallel to $\overline{AE}$ — $\overline{BF}, \overline{DH}, \overline{CG}$

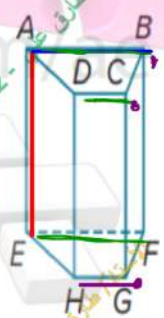
2. a segment skew to $\overline{AB}$ — $\overline{EH}$

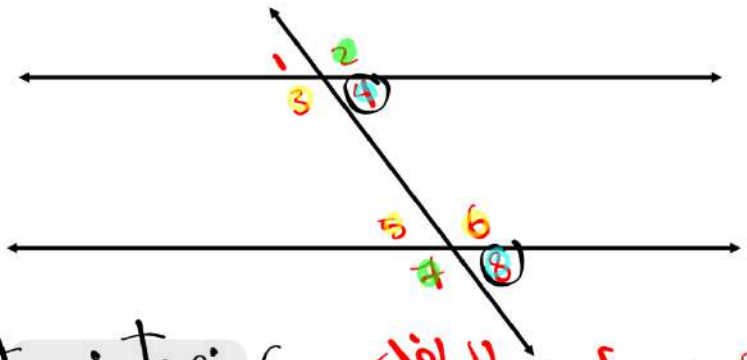
3. a pair of parallel planes — ABCD , EFGH

4. a segment parallel to $\overline{AD}$ — $\overline{EH}$

5. three segments parallel to $\overline{HG}$ — $\overline{CD}, \overline{EF}, \overline{AB}$

6. five segments skew to $\overline{BC}$ — $\overline{HG}, \overline{EF}, \overline{AE}, \overline{DH}, \overline{EH}$





① Alternate interior بينهما - يمين - بالداخل

$\angle 3, \angle 6$

② Alternate exterior بينهما - يسار - بالخارج

$\angle 2, \angle 7$

③ Corresponding Angles في نفس الاتجاه أحدهما بالداخل والآخر بالخارج

$\angle 4, \angle 8$

④ Consecutive interior في نفس الاتجاه وكلاهما بالداخل

$\angle 3, 5$

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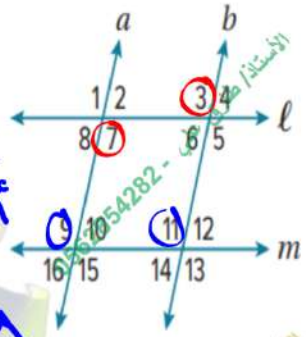
Use the given information to determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

1. $\angle 3 \cong \angle 7$

Alternate interior
line a ∥ b

2. $\angle 9 \cong \angle 11$

Corresponding
a ∥ b



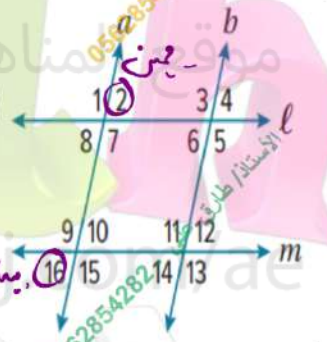
Use the given information to determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

3. $\angle 2 \cong \angle 16$

Alternate exterior
ℓ ∥ m

4. $m\angle 5 + m\angle 12 = 180°$

Consecutive interior
ℓ ∥ m



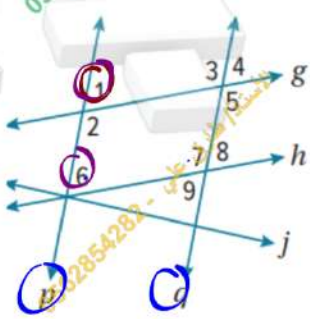
Given the following information, determine which lines, if any, are parallel. State the theorem that justifies your answer.

5. $\angle 1 \cong \angle 6$

Corresponding

6. $m\angle 7 + m\angle 6 = 180°$

Consecutive interior
p ∥ q



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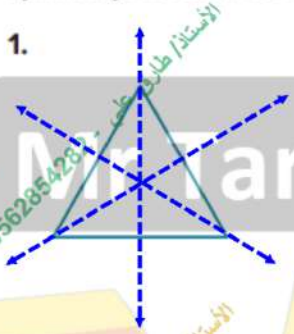
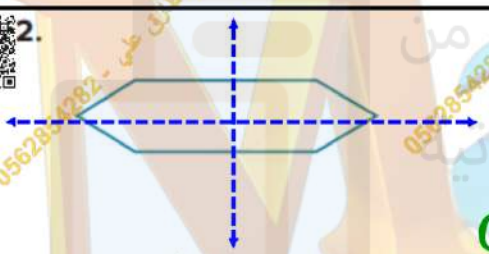
Determine whether each figure has a line of symmetry. If so, draw the lines of symmetry and state how many lines of symmetry it has.

1.



yes
3 lines

2.



yes
2 lines.

3.

No

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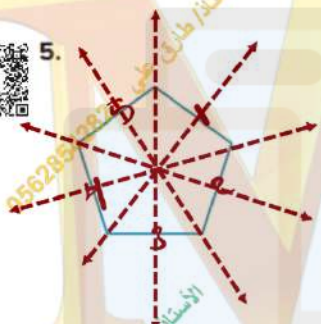
4.

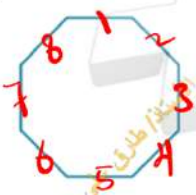
No

5.



yes
5 lines.

6.



yes
8 lines

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Determine whether each figure has rotational symmetry. If so, locate the center of symmetry, and state the order and magnitude of symmetry.

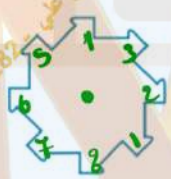
11. شكل منتظم (تقدر تعرف من الزوايا)

Yes, rotational symmetry

* order = 3

* Magnitude = $\frac{360}{3}$ = 120

12.



Yes

order = 8

Magnitude = $\frac{360}{8}$ = 45°

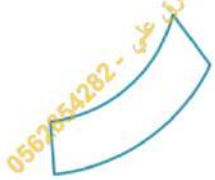
13.

Yes

* order = 2

* Magnitude = $\frac{360}{2}$ = 180

14.



No

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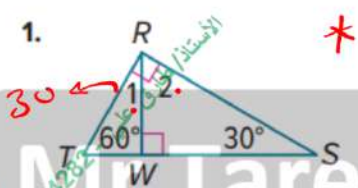
Find the measure of each numbered angle.

1.



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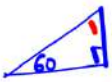
* 

$m\angle 1 = 180 - 90 - 60$

$\boxed{m\angle 1 = 30}$

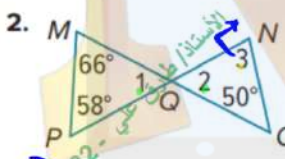
$\angle 1, \angle 2$ Complementary (Right angle)

$= 90$

$m\angle 2 = 90 - 30$

$\boxed{m\angle 2 = 60}$

2.



* $m\angle 1 = 180 - 66 - 58$

$\boxed{m\angle 1 = 56^\circ}$

(a) $\angle 1, \angle 2$ vertical are $\equiv$

$m\angle 1 = m\angle 2 = \boxed{56^\circ}$. Same

* $m\angle 3 = 180 - 56 - 50$

$= 74$ °

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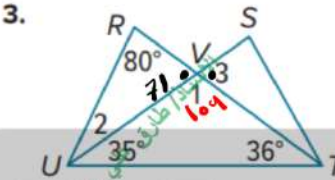
3.



$m\angle 1 = 180 - 36 - 35$

$m\angle 1 = 109$

$\angle 1, \angle 3$ بقاس بينهم ← 180 مجموعهم

$m\angle 3 = 180 - 109 = 71°$

$m\angle 2 = 180 - 80 - 71$

$m\angle 2 = 29$

مجموع زوايا المثلث ← 180

4.

$\angle 1 = \angle 2$

$m\angle 1 = m\angle 2 = \frac{180 - 146}{2}$

$m\angle 1 = m\angle 2 = 17°$

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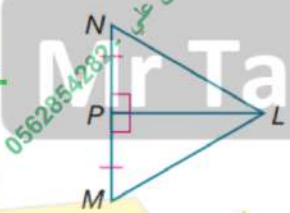
PROOF Write the specified type of proof.

11. two-column proof

Given: $NP \cong PM$, $\overline{NP} \perp \overline{PL}$

Prove: $\triangle NPL \cong \triangle MPL$



Proof:

Statements	Reasons
1. $NP \cong PM$, $\overline{NP} \perp \overline{PL}$	1. Given
2. $\overline{NP} \cong \overline{MP}$	2. Def. of congruence
3. $\angle MPL$ and $\angle NPL$ are rt. $\angle$s	3. $\perp$ lines form rt. $\angle$s.
4. $\angle MPL \cong \angle NPL$	4. All right angles are congruent.
5. $\overline{PL} \cong \overline{PL}$	5. Reflexive Property of $\cong$
6. $\triangle NPL \cong \triangle MPL$	6. SAS

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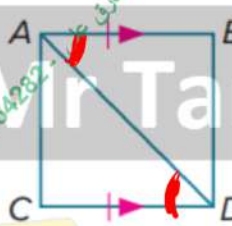
12. two-column proof

Given: $AB \cong CD$, $\overline{AB} \parallel \overline{CD}$

Prove: $\triangle ACD \cong \triangle DBA$



Proof:

Statements	Reasons
1. $AB = CD$, $\overline{AB} \parallel \overline{CD}$	1. Given
2. $\angle BAD \cong \angle CDA$	2. Alternate Interior Angles Thm.
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Property
4. $\overline{AB} \cong \overline{CD}$	4. Def. of congruent segments
5. $\triangle ACD \cong \triangle DBA$	5. SAS

Alternate interior Angles

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13. paragraph proof

Given: V is the midpoint of $\overline{WX}$ and $\overline{YZ}$.

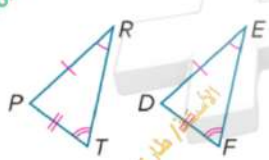
Prove: $\triangle XVZ \cong \triangle WVY$

Proof: Because V is the midpoint of $\overline{YZ}$ and the midpoint of $\overline{WX}$, by the Midpoint Theorem, $\overline{YV} \cong \overline{VZ}$ and $\overline{WV} \cong \overline{XV}$. Because $\angle YVW$ and $\angle ZVX$ are vertical angles, by the Vertical Angle Theorem, the angles are congruent. Therefore, by SAS, $\triangle XVZ \cong \triangle WVY$.

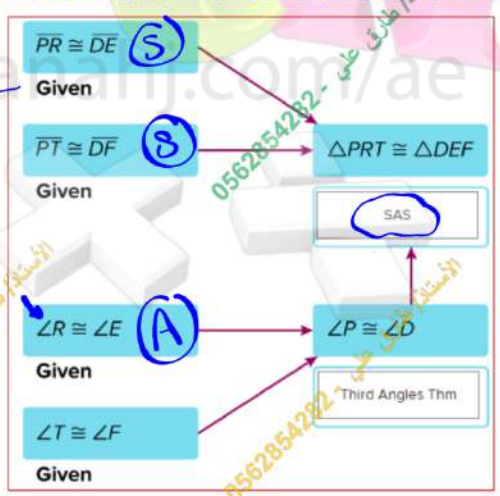
14. flow proof

Given: $\overline{PR} \cong \overline{DE}$, $\overline{PT} \cong \overline{DF}$, $\angle R \cong \angle E$, $\angle T \cong \angle F$

Prove: $\triangle PRT \cong \triangle DEF$



SAS



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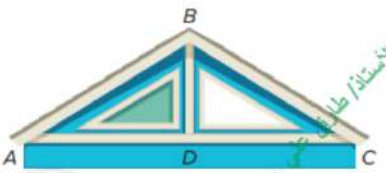
15. GAMING Devontae is building a house in a simulation video game. He wants the roof of the house and the main support beam to create congruent triangles. If $\overline{BD} \perp \overline{AC}$ and $\overline{BD}$ bisects $\overline{AC}$, write a two-column proof to prove $\triangle ABD \cong \triangle CBD$.



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Proof:

Statements	Reasons
1. $\overline{BD} \perp \overline{AC}$, $\overline{BD}$ bisects $\overline{AC}$.	1. Given
2. $\angle BDA$ and $\angle BDC$ are rt. angles.	2. $\perp$ lines form rt. angles.
3. $\angle BDA \cong \angle BDC$	3. All right angles are congruent.
4. $\overline{AD} \cong \overline{DC}$	4. Def. of segment bisector
5. $\overline{BD} \cong \overline{BD}$	5. Reflexive Property of $\cong$
6. $\triangle ABD \cong \triangle CBD$	6. SAS

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Write the specified type of proof.

12. flow proof

Given: $\overline{JK} \cong \overline{MK}$, $\angle N \cong \angle L$

Prove: $\triangle JKN \cong \triangle MKL$

Proof:

$\angle N \cong \angle L$ — Given

$\overline{JK} \cong \overline{MK}$ — Given

$\angle JKN \cong \angle MKL$ — Vertical $\angle$s are $\cong$.

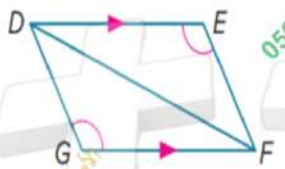
$\triangle JKN \cong \triangle MKL$ — AAS

Write the specified type of proof.

13. paragraph proof

Given: $\overline{DE} \parallel \overline{FG}$, $\angle E \cong \angle G$

Prove: $\triangle DFG \cong \triangle FDE$



Proof: It is given that $\angle E \cong \angle G$ and $\overline{DE} \parallel \overline{FG}$. By the Alternate Interior Angles Theorem, $\angle DFG \cong \angle FDE$. $\overline{DF} \cong \overline{DF}$ by the Reflexive Property of Congruence. Therefore, $\triangle DFG \cong \triangle FDE$ by AAS.

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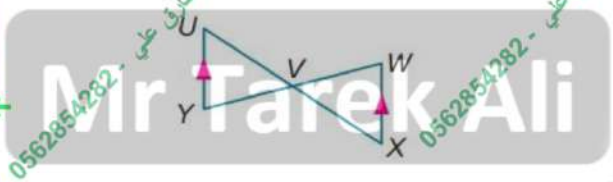
14. two-column proof

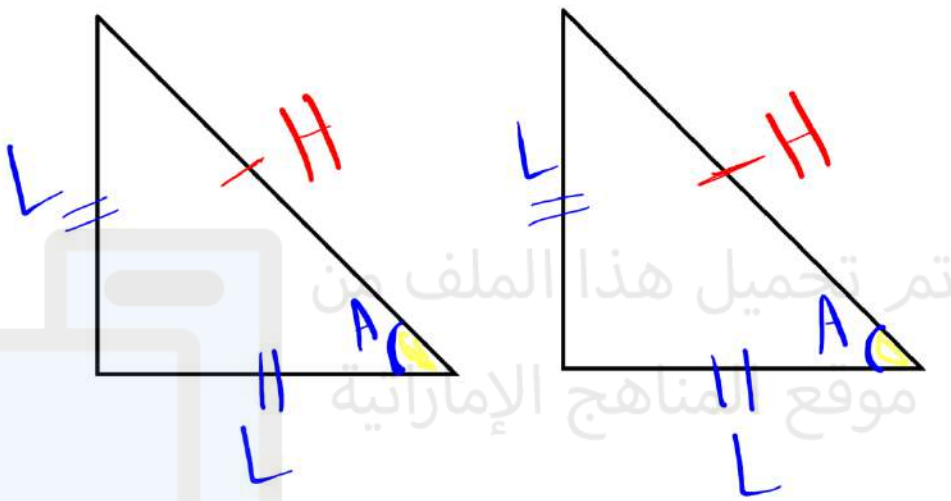
Given: V is the midpoint of $\overline{YW}$; $\overline{UY} \parallel \overline{XW}$,

Prove: $\triangle UVY \cong \triangle XVW$



Proof:

Statements	Reasons
1. V is the midpoint of $\overline{YW}$; $\overline{UY} \parallel \overline{XW}$	1. Given
2. $\overline{YV} \cong \overline{VW}$	2. Midpoint Theorem
3. $\angle VWX \cong \angle VYU$	3. Alternate Interior Angles Theorem
4. $\angle VUY \cong \angle VXW$	4. Alternate Interior Angles Theorem
5. $\triangle UVY \cong \triangle XVW$	5. AAS



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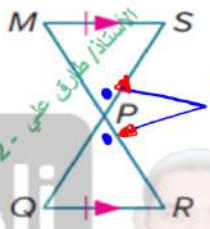
15. two-column proof

Given: $\overline{MS} \cong \overline{RQ}$, $\overline{MS} \parallel \overline{RQ}$

Prove: $\triangle MSP \cong \triangle RQP$



vertical Angles

Proof:

Statements	Reasons
1. $\overline{MS} \cong \overline{RQ}$, $\overline{MS} \parallel \overline{RQ}$	1. Given
2. $\angle SPM \cong \angle QPR$	2. Vertical Angles Theorem
3. $\angle SMP \cong \angle QRP$	3. Alternate Interior Angles Theorem
4. $\triangle MSP \cong \triangle RQP$	4. AAS

أول حل

Determine whether each pair of triangles is congruent. If yes, include the theorem that applies.

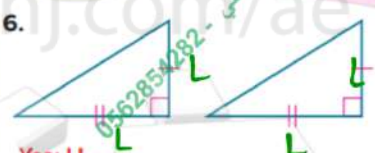
4.

Yes; HL

5.

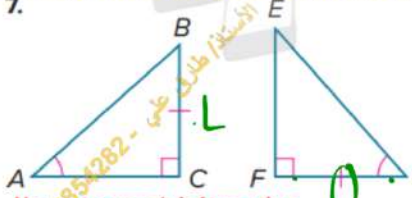
Yes; LA

6.



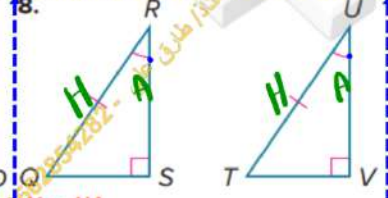
Yes; LL

7.



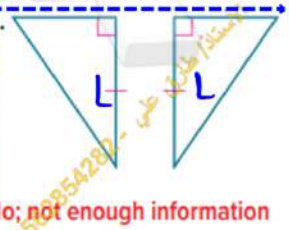
No; not enough information

8.



Yes; HA

9.



No; not enough information