

F₁ Geometry - Use of AI

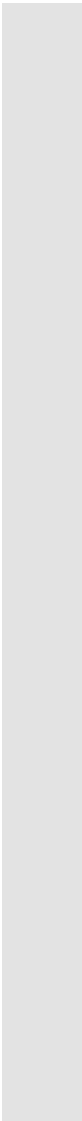
Methodist College

Angles related to Lines – Identifying Parallel Lines

- Level: Form 1
- Class Size: 33 students
- Duration: 40 minutes/lesson
- Materials: iPad



Previous Knowledge

- Students have learned the corresponding angles, alternate angles and interior angles formed by a transversal and parallel lines
- 

Lesson Objective

By the end of the lessons, students should be able to

- use AI tools to design and generate a class logo
- decide whether the logo shows parallel lines
- use geometric explanation to identify parallel lines
- judge whether AI tools provide accurate geometric explanation

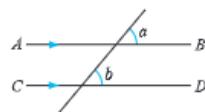
Generic Skills and Values and Attitudes

- Collaboration skills: Students will engage in group work.
- Communication skills: Students will interact with their classmates and present their logo designs.
- Information literacy skills: Students will evaluate the AI information.



2. Angles related to parallel lines

(a) Corresponding angles

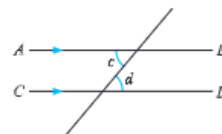


If $AB \parallel CD$, then $a = b$.

[Abbreviation:

corr. \angle s, $AB \parallel CD$]

(b) Alternate angles

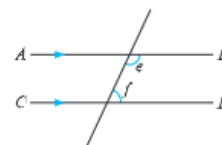


If $AB \parallel CD$, then $c = d$.

[Abbreviation:

alt. \angle s, $AB \parallel CD$]

(c) Interior angles on the same side



If $AB \parallel CD$, then $e + f = 180^\circ$.

[Abbreviation:

int. \angle s, $AB \parallel CD$]

Example 4

In the figure, $AEFB$, CFG and DFH are straight lines, and $AB \parallel CD$. Find x , y and z .

Solution

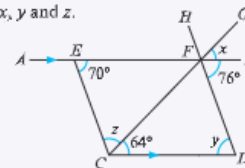
$$x = 64^\circ \quad (\text{corr. } \angle\text{s, } AB \parallel CD)$$

$$y = 76^\circ \quad (\text{alt. } \angle\text{s, } CD \parallel AB)$$

$$70^\circ + (x + 64^\circ) = 180^\circ \quad (\text{int. } \angle\text{s, } AB \parallel CD)$$

$$z + 134^\circ = 180^\circ$$

$$z = 46^\circ$$



3. Three conditions for parallel lines

(a)



If $a = b$, then $AB \parallel CD$.

[Abbreviation: *corr. \angle s equal*]

(b)



If $c = d$, then $AB \parallel CD$.

[Abbreviation: *alt. \angle s equal*]

(c)



If $e + f = 180^\circ$, then $AB \parallel CD$.

[Abbreviation: *int. \angle s supp.*]

Example 5

In the figure, FCE is a straight line. Determine whether the following pairs of lines are parallel and explain your answer.

(a) BC and DE

(b) BC and FG

(c) AB and FC

Solution

$$(a) \because \angle BCF = \angle DEF$$

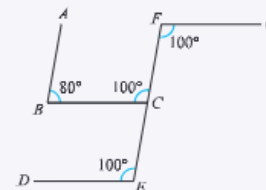
$$\therefore BC \parallel DE \quad (\text{corr. } \angle\text{s equal})$$

$$(b) \because \angle BCF = \angle CFG$$

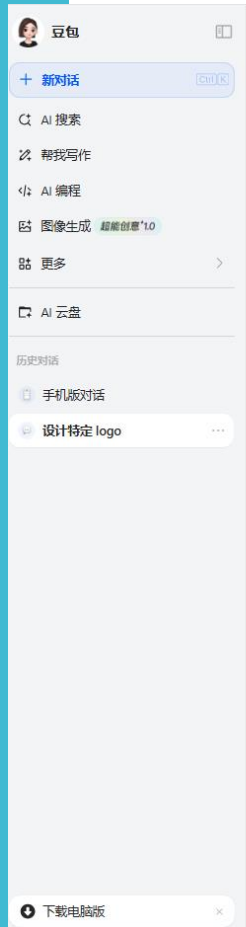
$$\therefore BC \parallel FG \quad (\text{alt. } \angle\text{s equal})$$

$$(c) \because \angle ABC + \angle BCF = 80^\circ + 100^\circ = 180^\circ$$

$$\therefore AB \parallel FC \quad (\text{int. } \angle\text{s supp.})$$



Lesson 1: 5 min Introduction of AI



设计特定 logo
内容由 AI 生成

add other not necessary lines

接下来我会生成四张简约现代风的图片，纯色背景，“1W”在中心，周围倾斜且相互连接的平行线上有截线，另外添加一些非必要的线条。



generate a similar one like the first one but the lines must be connected to 1W

接下来我将生成四张图片，画面为简约现代风，以白色为纯色背景，“1W”处于中心，周围的线条都与“1W”相连。



发消息、输入 @ 选择技能或 / 选择文件

深度思考: 自动 技能



Lesson 1: 5 min Introduction of AI

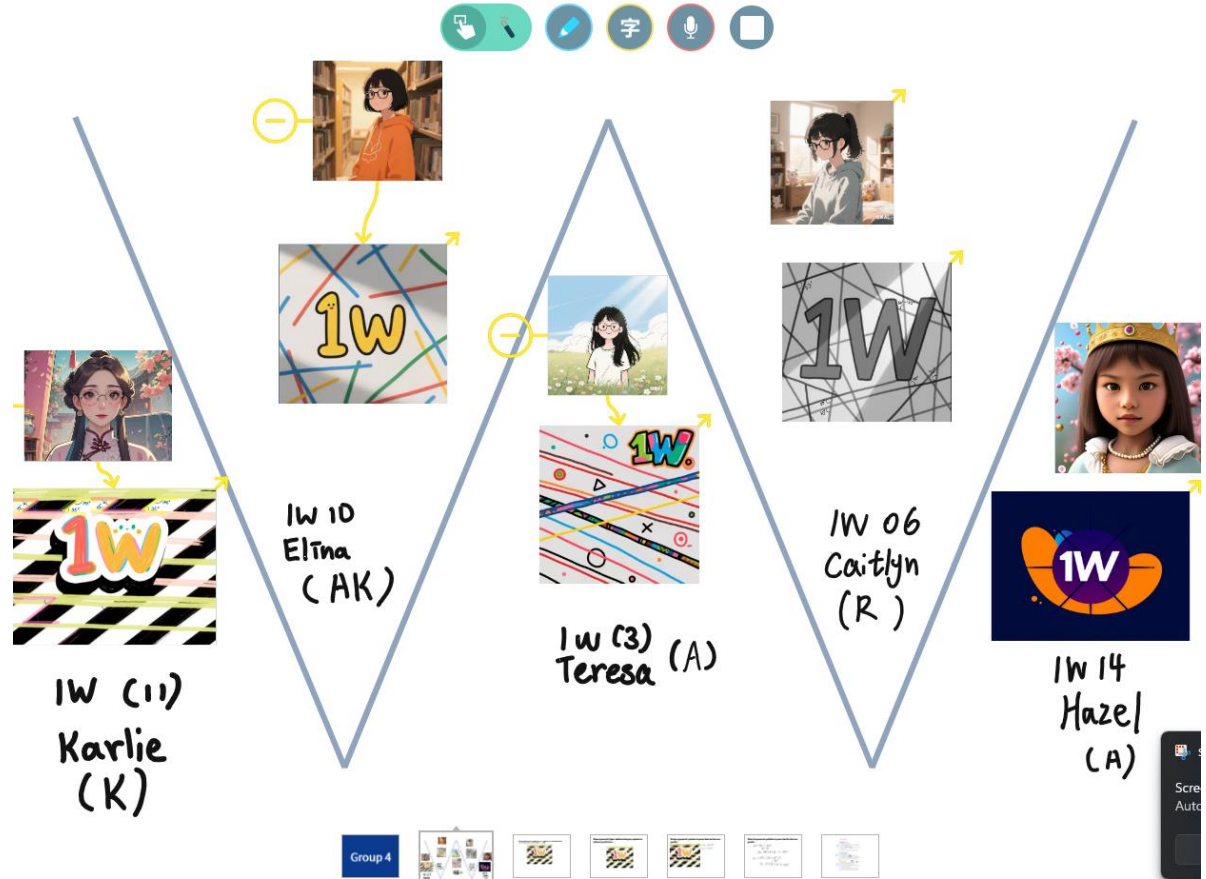
The whiteboard interface features a top toolbar with icons for erasing, drawing, and navigating. The main workspace is divided into four quadrants by a large blue 'X'. In the top-left quadrant, a photo of a woman labeled 'Ms. Vick' is connected by a yellow arrow to a dark blue square containing a white geometric '1W' logo. Handwritten red annotations include '① image' pointing to the photo, '② name' pointing to the text 'Ms. Vick', and '③ design' pointing to the logo. In the top-right quadrant, a close-up of the '1W' logo is shown with blue lines and handwritten labels 'parallel lines' and 'transversal line'. In the bottom-right quadrant, a cartoon boy is connected by a yellow arrow to a stylized '1W' logo with orange and blue lines. Handwritten purple annotations include 'parallel lines' and 'transversal line'. The bottom toolbar contains an 'Example' button and several small thumbnail images of the logo design process.

Lesson 1: 25 min Development

Use AI to generate a logo for Class 1W. The logo must include as many parallel lines as possible in your design.

	Group 3	Example	Group 8
	Group 2	Group 5	Group 7
	Group 1	Group 4	Group 6

Lesson 1: 25 min Development



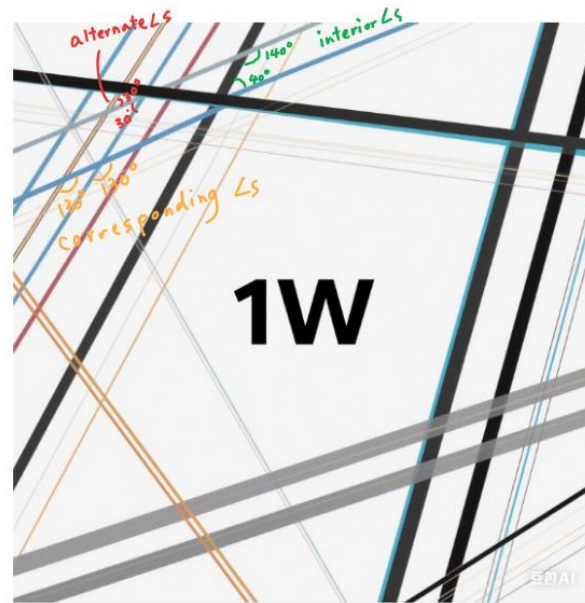
Lesson 1:
5 min
Conclusion



Lesson 2: 5 min Introduction



Choose a design among your group members. Find and label as many alternate angles, corresponding angles, and interior angles as possible.



Lesson 2:
25 min
Development

Choose a design among your group members. Find and label as many alternate angles, corresponding angles, and interior angles as possible.



Lesson 2: 10 min Conclusion



Suggested Sentences

Alternate Angles

1. These two angles are equal.
2. One angle is below the top parallel line, and another angle is above the bottom parallel line.
3. These two angles are on the (different/left and right) sides of the transversal.
4. Therefore, we can prove that these two lines are parallel.

Corresponding Angles

5. These two angles are equal.
6. These two angles are (above/below) the parallel lines.
7. These two angles are on the (left/right) side of the transversal.
8. Therefore, we can prove that these two lines are parallel.

Interior Angles

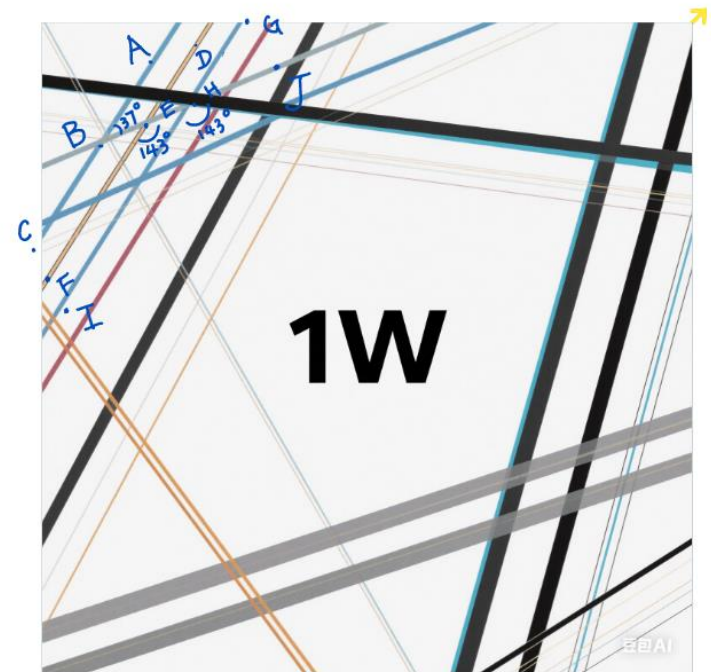
9. These two angles add up to 180° .
10. These two angles are supplementary angles.
11. One angle is below the top parallel line, and another angle is above the bottom parallel line.
12. These two angles are on the same side of the transversal.
13. Therefore, we can prove that these two lines are parallel.

Lesson 3:
5 min
Introduction



Design a geometric problem to prove that two lines are parallel.

- a) Is $DEF \parallel GHI$?
- b) Is $ABC \parallel DEF$?



Lesson 3: 5 min Introduction



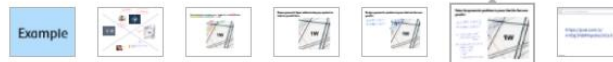
Solve the geometric problem to prove that the lines are parallel.

a) Is $DEF \parallel GHI$?

b) Is $ABC \parallel DEF$?

a) $\because \angle JHI = \angle HEF = 143^\circ$
 $\therefore DEF \parallel GHI$ (corr. \angle s,
equal)

b) $\angle DEB = 143^\circ$ (vert. opp. \angle s)
 $\angle ABE + \angle DEB$
 $= 37^\circ + 143^\circ$
 $= 180^\circ$
 $\therefore ABC \parallel DEF$ (int. \angle s, supp.)



Lesson 3:
25 min
Development



Lesson 3:
5 min
Conclusion



Design a geometric problem to prove that two lines are parallel.

LEFD = ?

is parallel GH//JI?



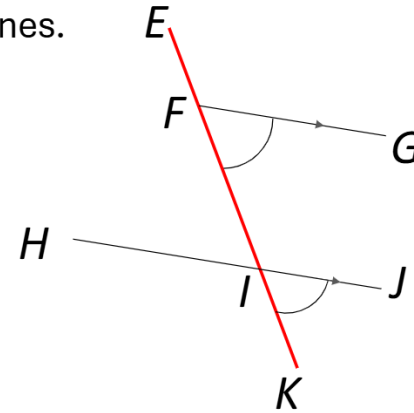
Lesson 4: 10 min Recap



1. $EFIK$, FG and HIJ are straight lines.

FG is parallel to HIJ .

EFI is called the _____ line of FG and HJ .



- A. parallel
- B. adjacent
- C. perpendicular
- D. transversal
- E. vertical

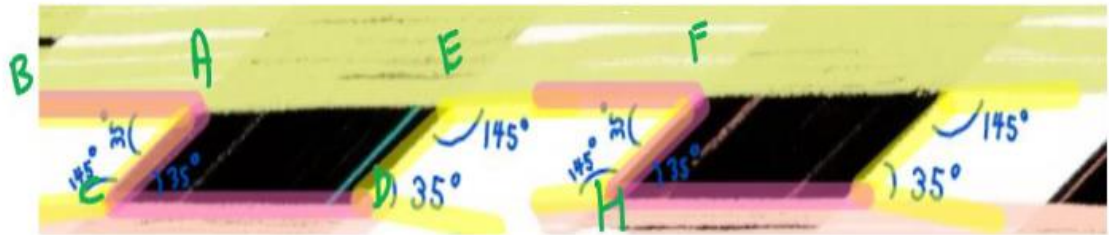
Quiz Q1

W01 ADHIKARI SUSILA 雪...	W02 CHAU TSZ YAN 周梓恩...	W03 FU WUN YAU 傅煥榮...	W04 LAM WAI CHING 林焜...	W05 LAW YU TING LUCKY...	W06 LEE LEONG YIN 李亮...	W07 LEUNG HAU YING 梁...
D	D	D	D	D	D	E
W08 LI MAN YIN 李敏言 (24-...	W09 LI PUI YI 黎貝兒 (24-25)	W10 LI YAU ELINA 李悠 (24-...	W11 MA HOI KI 馬凱琪 (24-...	W12 NG SUM YIN 吳心妍 (2-...	W13 SIU WAI TUNG 蕭煒彤...	W14 TING CHO KIU 丁楚翹...
E	E	D	D	D	D	D
W15 WONG HAI HEI 黃海信...	W16 WONG WING YAN 王...	W17 YU TSZ YAU 余紫悠 (2-...	W18 AU YEUNG HOI PAK...	W19 CHAN HOI YAM 陳海...	W20 CHAN TSZ HO 陳子浩...	W21 CHOW NAP HEI RAPH...
D		D	D	D	D	D
W22 CHUI HOI SEN 徐海賓...	W23 CHUNG CHI WAI 鍾知...	W24 HE WEIMIN 何偉民 (2-...	W25 HO CHUN HANG 何晉...	W26 KWOK LAP PUI CARL...	W27 KWONG CHUNG MAN...	W28 LAI HO YIN 黎浩然 (24-...
D	D	D	D	D	D	D
W29 LAI TSZ CHUN CARRI...	W30 LAU PERSEUS YUI HO...	W31 LEE CHUN YU MAX 李...	W32 TSANG CHIU YAT 曾翹...	W33 WU ZIMING 吳梓銘 (2-...	Doi Pei Yick	
D	D	D	D	D		

F.1 Mathematics
Section 11.3 Identifying Parallel Lines
Self-designed Exercises

Group Number: 3, 6, 10, 11, 14

Question 2



a) Is $AB \parallel CD$?

b) Is $DH \parallel EF$?

a) $\therefore \angle BAC = \angle ACD$

$\underline{35^\circ} = 35^\circ$

\therefore Yes, $AB \parallel CD$ (alt \angle s equal) ✓

b) $\therefore \angle DEF + \angle EFH = 145^\circ + 35^\circ$

$= 180^\circ$

\therefore Yes, $DH \parallel EF$ (int \angle s supp) ✓

Lesson 4:
10 min
Conclusion

Lesson 4: 10 min Conclusion

How does the AI tool answer Question 2? Is the answer correct?

Answer:

a) Yes, $AB \parallel CD$ because $\angle ABC = \angle PCD = 35^\circ$ (alternate angles are equal).

b) Yes, $DH \parallel EF$ because the sum of the given angles is 180° (co-interior angles are supplementary).

Note: The explanation for part (b) appears to contain typographical errors ("us5*+ xs5=(80°"). It should state that the co-interior angles add up to 180° , confirming $DH \parallel EF$.

AI did not do the question a) correctly.
Because there are no $\angle PCD$.
AI do the question b) correctly.



Lesson 4: 10 min Conclusion

How does the AI tool answer Question 2? Is the answer correct?

a.) Yes, the answer is correct.

corresponding angles are equal, then the two lines are parallel.
- Here, the corresponding angles are equal ($35^\circ = 35^\circ$), so $AB \parallel CD$.

[Use English to answer](#)

Answer
Yes, $AB \parallel CD$.

Explanation

1. First, consider the adjacent - angle relationship.
 - The angle adjacent to the 145° angle on line AB forms a linear pair with it. Since the sum of angles in a linear pair is 180° , the measure of this adjacent - angle is $180^\circ - 145^\circ = 35^\circ$.
2. Then, apply the Corresponding Angles Postulate.
 - This 35° angle and the 35° angle on line CD are corresponding angles.
 - According to the Corresponding Angles Postulate, when two lines are intersected by a transversal and the corresponding angles are congruent, the two lines are parallel.
 - As these corresponding angles are congruent ($35^\circ = 35^\circ$), we can conclude that $AB \parallel CD$.

b.) Yes, the answer is correct.

14:12

[Give me the full answer by using English](#)

Answer:
Yes, $DH \parallel EF$.

Explanation:
We know that if the corresponding angles or alternate - interior angles formed by a transversal with two lines are equal, then the two lines are parallel.
Here, the angles associated with lines DH and EF are equal (both have an angle of 145° and 35° in the relevant angular relationships). So, by the properties of parallel lines (such as the alternate - interior angles theorem), we can conclude that DH is parallel to EF .

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