

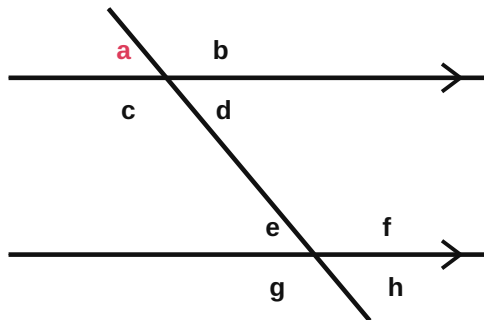
Boost Free Lessons - Year 7 Maths

Lesson 19: Angles on Parallel Lines

Name: _____ Grade: _____ Date: _____

Worked Example 1

In the diagram below, angle $a = 115^\circ$. Find angle e .



1. Angles a and e are in matching positions at the two intersections. They form an **F** shape.
2. Angles in matching positions are called **corresponding angles**.
3. Corresponding angles on parallel lines are **equal**.

$e = 115^\circ$

Worked Example 2

Two parallel lines are cut by a transversal. One co-interior angle is 72° . Find the other.

1. Co-interior angles sit **between** the parallel lines, on the **same side** of the transversal. They form a **C** shape.
2. Co-interior angles on parallel lines are supplementary: they add to 180° .
3. So the other angle is $180 - 72$.

$= 108^\circ$

Remember: **F** shape = corresponding (equal). **Z** shape = alternate (equal). **C** shape = co-interior (add to 180°).



Question 1: Find the size of each angle described below, given that the lines are parallel.

1. The corresponding angle to 65°

2. The alternate angle to 130°

3. The co-interior angle to 80°

4. The vertically opposite angle to 47°

5. The co-interior angle to 145°

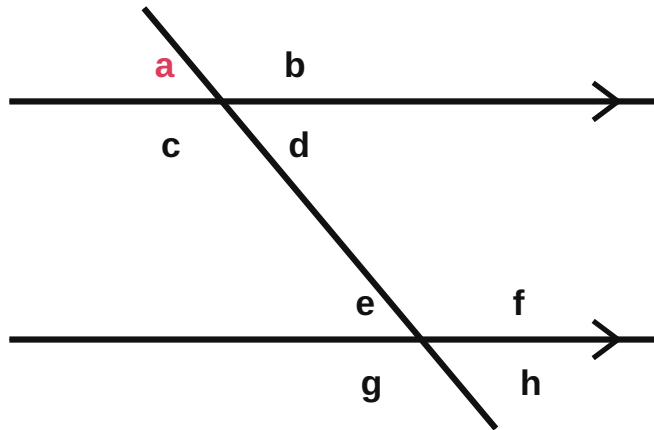
6. The alternate angle to 39°

7. The corresponding angle to 91°

8. The angle on a straight line next to 108°



Question 2: In the diagram below, angle $a = 125^\circ$. Find each of the following.



1. Find b .
2. Find c .
3. Find d .
4. Find e .
5. Find f .
6. Find g .
7. Find h .
8. Name the relationship between angles d and e .



Question 3: Answer the following questions.

1. Two co-interior angles on parallel lines are such that one is three times the other. Find both angles.
2. In a diagram, x and 68° are alternate angles on parallel lines. Find x .
3. Two lines are cut by a transversal. A pair of corresponding angles measure 74° and 76° . Are the two lines parallel? Explain.
4. On a pair of parallel lines, the corresponding angles are labelled $x + 30$ and $2x - 10$. Find x .
5. Two parallel roads are crossed by a straight path. The path meets the first road at 55° . What angle does it make with the second road on the same side?





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Answers : Angles on Parallel Lines**Question 1**

- | | |
|----------------|---------------|
| 1. 65° | 5. 35° |
| 2. 130° | 6. 39° |
| 3. 100° | 7. 91° |
| 4. 47° | 8. 72° |

Question 2

- | | |
|--------------------|--------------------------------------|
| 1. $b = 55^\circ$ | 5. $f = 55^\circ$ |
| 2. $c = 55^\circ$ | 6. $g = 55^\circ$ |
| 3. $d = 125^\circ$ | 7. $h = 125^\circ$ |
| 4. $e = 125^\circ$ | 8. Alternate angles (they are equal) |

Question 3

1. 45° and 135°
2. $x = 68^\circ$
3. No. If the lines were parallel the corresponding angles would be equal, and $74^\circ \neq 76^\circ$.
4. $x = 40$
5. 55° (corresponding angles)

