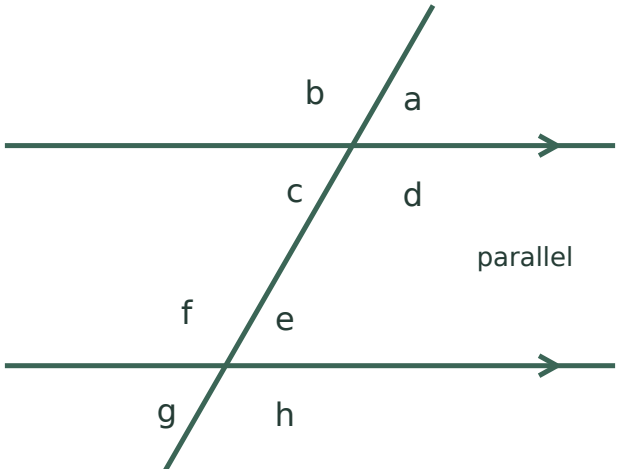
Parallel lines and transversals

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. The horizontal lines in the diagram are parallel and $a = 73^\circ$. [3 marks]



Letters name angle positions; sketch not to scale.

(a) Find e and name the angle rule. [1 mark]

$e = a = 73^\circ$.

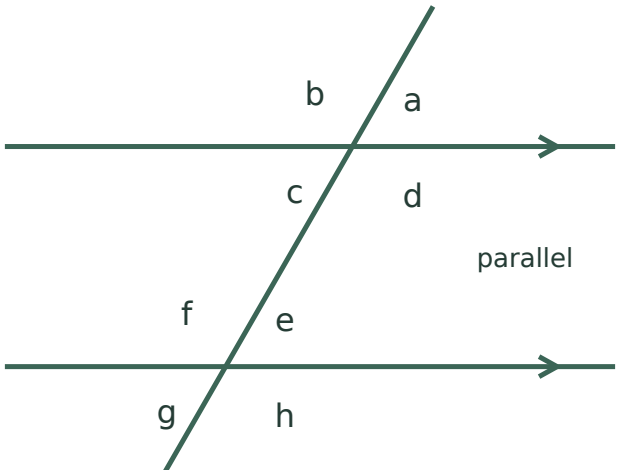
Answer: 73°, corresponding angles.

(b) Find h and give a reason. [2 marks]

$h = 180^\circ - e = 107^\circ$.

Answer: 107°.

2. The horizontal lines are parallel and $d = 113^\circ$. Find f and name the angle relationship. [2 marks]



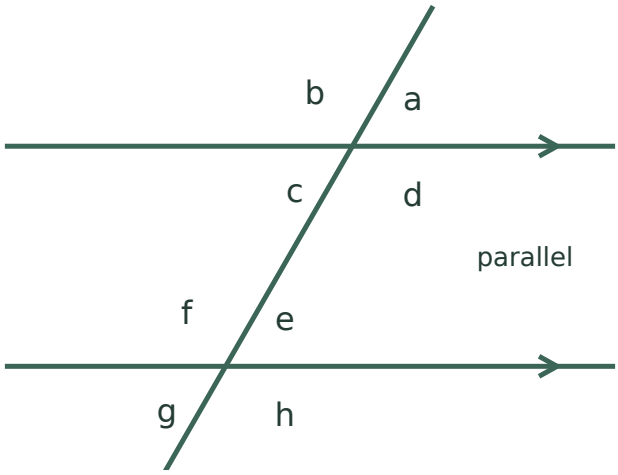
Letters name angle positions; sketch not to scale.

d and f lie inside the lines on opposite sides of the transversal.

Alternate interior angles are equal.

Answer: $f = 113^\circ$, alternate interior angles.

3. The horizontal lines are parallel and $c = 65^\circ$. Find f. [2 marks]



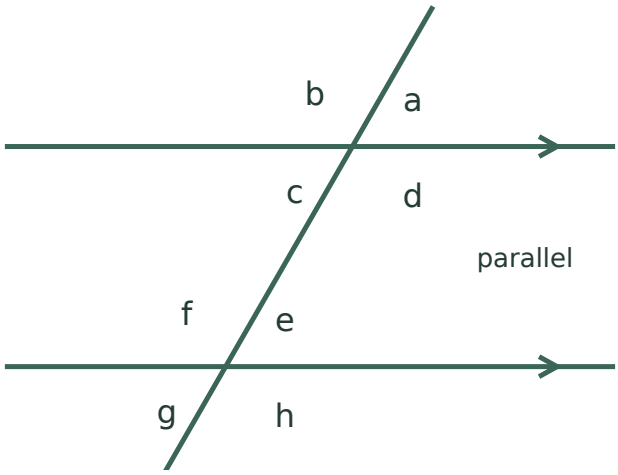
Letters name angle positions; sketch not to scale.

c and f are co-interior.

$f = 180^\circ - 65^\circ = 115^\circ$.

Answer: $f = 115^\circ$.

4. Corresponding angles b and f are $(2x+12)^\circ$ and $(4x-24)^\circ$. The lines are parallel. Find x and their common size. [3 marks]



Letters name angle positions; sketch not to scale.

$2x+12=4x-24$.

$36=2x$, so $x=18$.

$2(18)+12=48$.

Answer: $x=18$; both angles are 48°.

5. Two lines cut by a transversal have co-interior angles of 108° and 72°. What can you conclude? Explain. [2 marks]

$108+72=180$.

Co-interior angles totalling 180 degrees establish parallelism.

Answer: The lines are parallel.

6. Two corresponding angles are exactly 88° and 89°. Are the lines parallel? Explain. [2 marks]

Corresponding angles must be equal when lines are parallel.

$88\neq89$, so the given exact angles do not establish parallel lines; they show the lines are not parallel.

Answer: No.