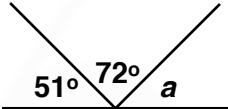
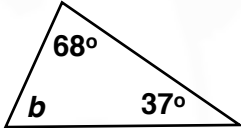
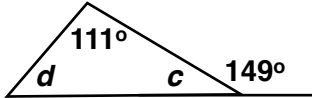
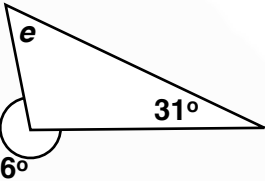
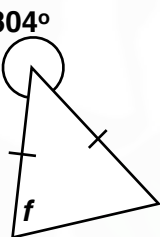
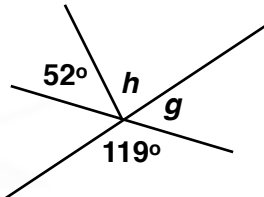


Parallel and Intersecting Lines

Starter

- (Review of last lesson)** The total mass of 5 rugby players is 425 kg and the mean of ten ballet dancers is 40 kg. What is the average mass of all 15 people?
- (Review of Y7 material)** Copy and complete these statements:
 - Angles around a point add up to ____.
 - Angles on a straight line add up to ____.
 - Angles in a triangle add up to ____.
 - Angles in a quadrilateral add up to ____.

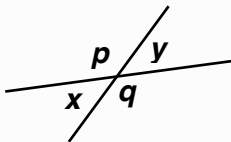
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Notes

Angles involving parallel and intersecting lines

Vertically opposite angles

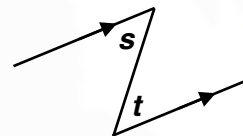
x and y are vertically opposite to each other
 p and q are vertically opposite to each other



Vertically opposite angles are equal
 So $x = y$ and $p = q$

Alternate angles

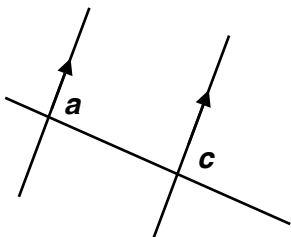
Known informally as Z-angles.
 s and t are alternate angles



Alternate angles are equal.
 So $s = t$

Corresponding angles

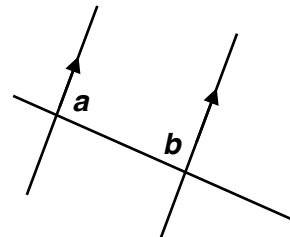
Known informally as F-angles.



Corresponding angles are equal.
 So $a = c$

Allied or co-interior angles

a and b are allied (or co-interior) angles



Allied angles add up to 180° .
 So $a + b = 180^\circ$

Geogebra: [Vertically opposite angles](#)

Geogebra: [Alternate angles](#)

Geogebra: [Corresponding angles](#)

Geogebra: [Allied angles](#)

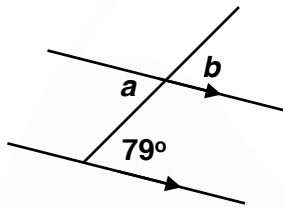
Supplementary angles — two angles are supplementary when they add up to 180° .

N.B. When answering angle questions:

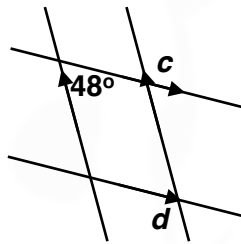
- Always draw the diagram.
- At each stage you must give a reason for your thinking.
- You may need to add more letters to your diagram.

E.g. 1 Find the marked angles, giving reasons for your answers.

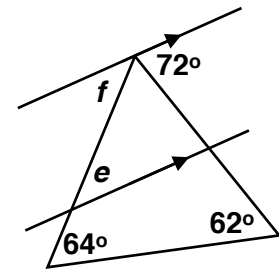
(a)



(b)



(c)

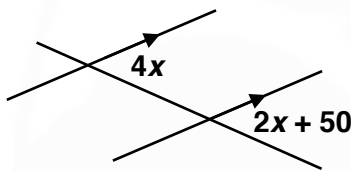


Hint: Add more letters to your diagram.

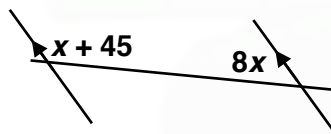
Working: (a) $a = 79^\circ$ (alternate angles)
 $b = 79^\circ$ (vertically opposite angles)

E.g. 2 Calculate the value of x . Show your working clearly and give reasons.

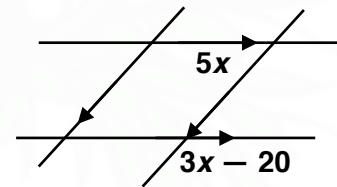
(a)



(b)



(c)



Working: (a) $4x = 2x + 50$ *corresponding angles*
 $2x = 50$
 $x = 25$

Video: [Angles - parallel lines](#)

Video: [Angles in triangles](#)

[Solutions to Starter and E.g.s](#)

Exercise

p195 Ex 11.2 Qu 1-9 (draw all diagrams - give an explanation for each step)

Summary

Vertically opposite angles are equal.

Alternate angles are equal.

Corresponding angles are equal.

Allied angles add up to 180° .

[Textbook answers \(only available during a lockdown\)](#)