


Shape and Space

1. Angle Facts

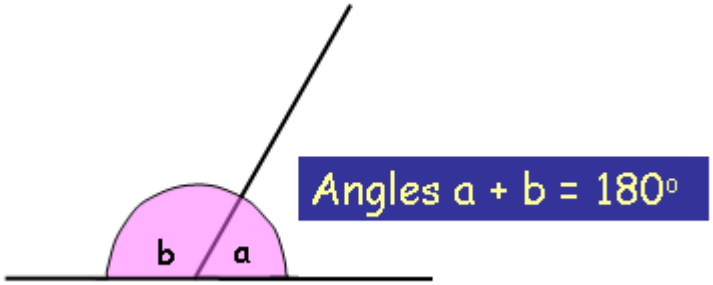

1. Angle Facts

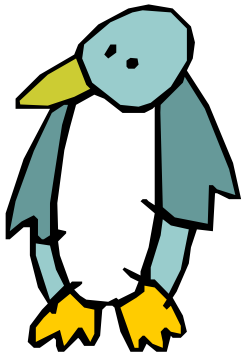
Three things you should learn about Angle Facts:

1) What each of the facts say
2) How to spot them
3) How to show you are using angle facts in your answers.

Fact 1: Angles on a Straight Line

Fact: Angles on a straight line add up to 180^0

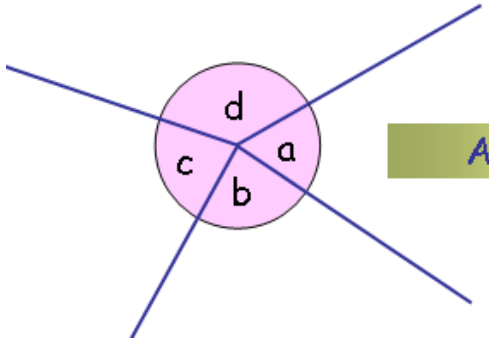




How to spot it: Find any continuous straight line, with another straight line joining it or cutting across it

Fact 2: Angles around a Point

Fact: Angles around a point add up to 360^0

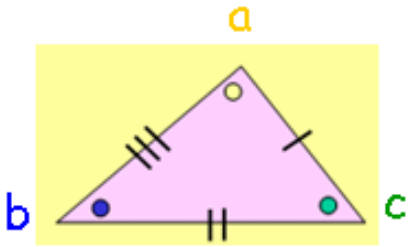


Angle a + b + c + d = 360^0

How to spot it: If you have a collection of lines all crossing at one point, then it's time to use this rule!

Fact 3: Angles in a Triangle

Fact: The interior (inside) angles of a triangle add up to 180^0

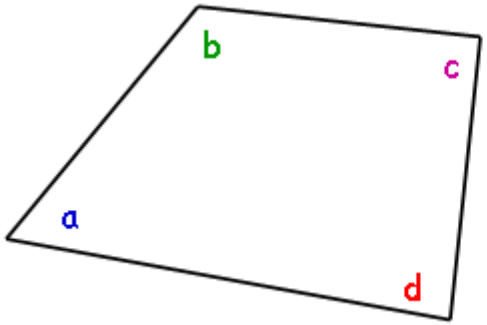


a + b + c = 180^0

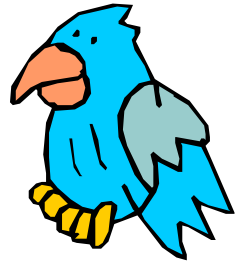
How to spot it: Find any type of triangle (equilateral, isosceles, right-angled, or scalene) and all the angles inside will add up to 180^0

Fact 4: Angles in a Quadrilateral

Fact: Interior (inside) angles of a quadrilateral add up to 360^0



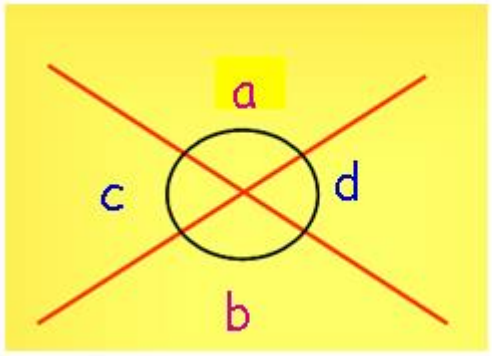
$a + b + c + d = 360^0$



How to spot it: Find any 4 sided shape (square, rectangle, trapezium, kite, etc.) and the inside angles will add up to 360^0

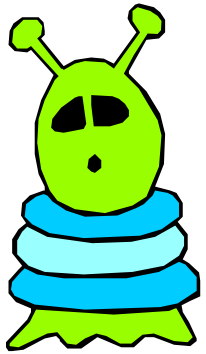
Fact 5: Opposite Angles

Fact: Opposite Angles are equal



$a = b$

$c = d$



How to spot it: Find two continuous straight lines crossing at a point. The pairs of angles opposite each other will be equal

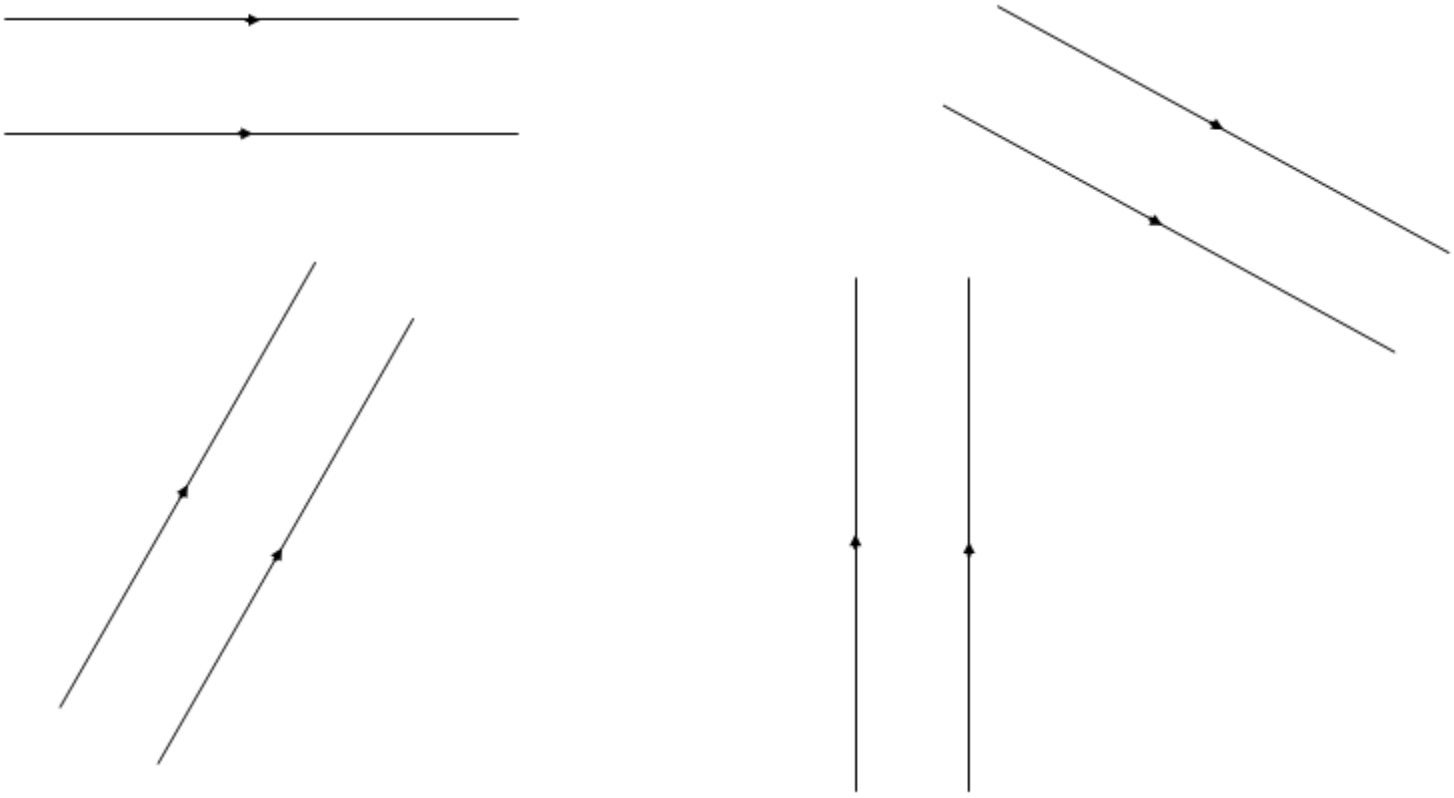
Note: Using Fact 2, all the angles around that point will add up to 360^0

A Quick Note on Parallel Lines

For these next 3 Angle Facts, you need to be comfortable with Parallel Lines…

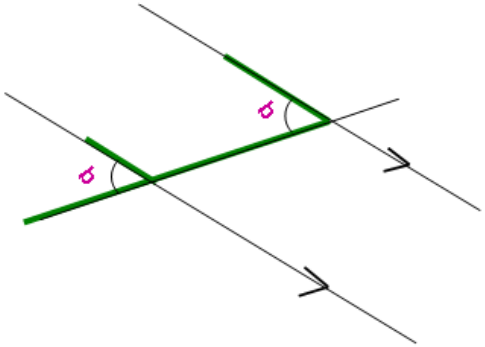
Parallel lines are lines which never meet, and always keep a perfectly equal distance apart.

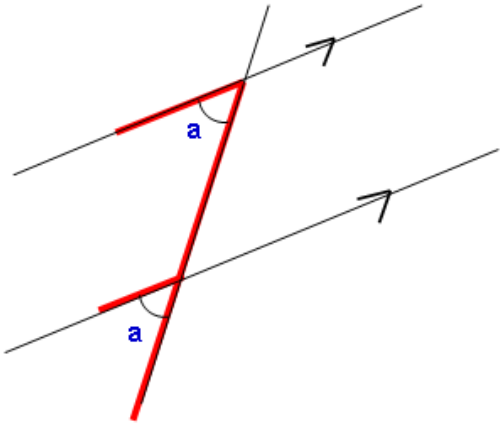
Remember: Only assume lines are parallel if they have those little arrows on them:



Fact 6: Corresponding Angles

Fact: Corresponding Angles are equal

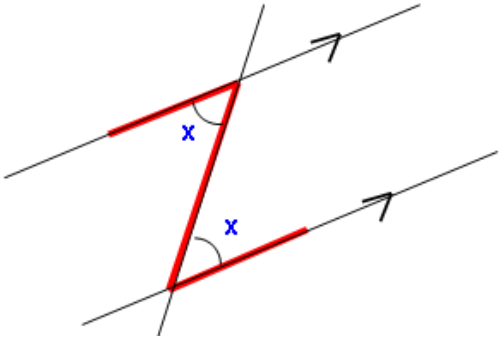


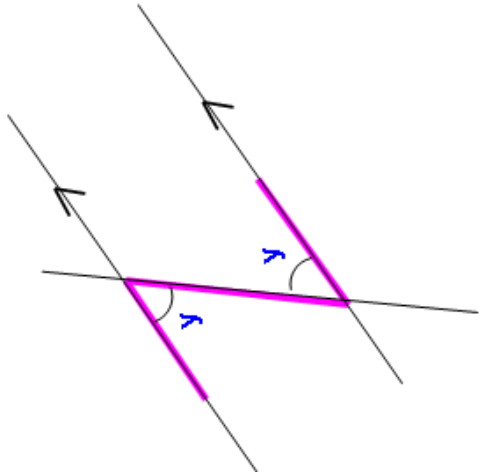


How to spot it: Look for the **F** shape, the angles underneath the arms of the F are equal
Note: The arms of the F must definitely be Parallel lines!

Fact 7: Alternate Angles

Fact: Alternate Angles are equal

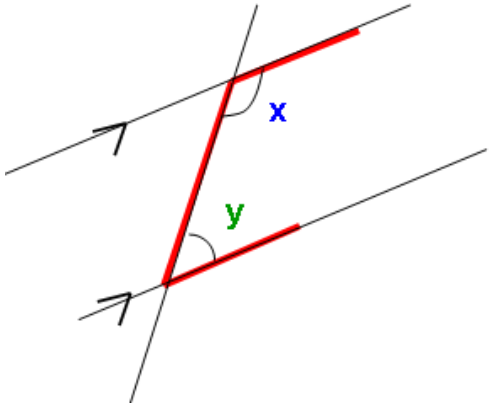




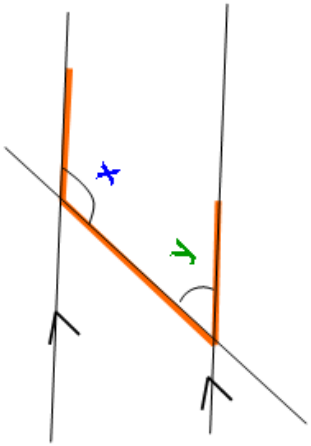
How to spot it: Look for the **Z** shape, the angles "inside" the Z are equal
Note: The top and bottom of the Z must be Parallel Lines!

Fact 8: Interior Angles

Fact: Interior Angles add up to 180^0



$x + y = 180^0$



How to spot it: Look for the ***C*** shape, the angles underneath the top and bottom of the *C* add up to 180^0

Note: The top and bottom of the *C* must definitely be Parallel lines!

Tips for Answering Angle Questions

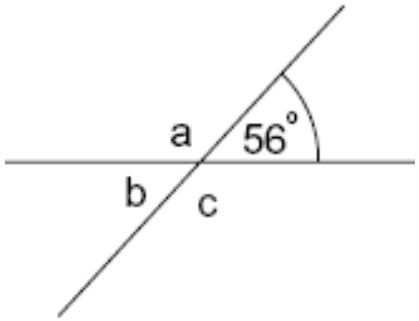
1. Always write down the name of each of the Angle Facts you have used to get your answer (even if there are more than one)

2. Parallel Lines are only parallel if they have the little arrows to say so!

3. If you have lots of labelled angles to find and you just don't know where to start, sometimes it's a good idea to go in alphabetical order!

4. Often there are lots of different ways of working out the answer

Example 1



a = 180 – 56 = 124^0

(Fact 1 – angles on a straight line)

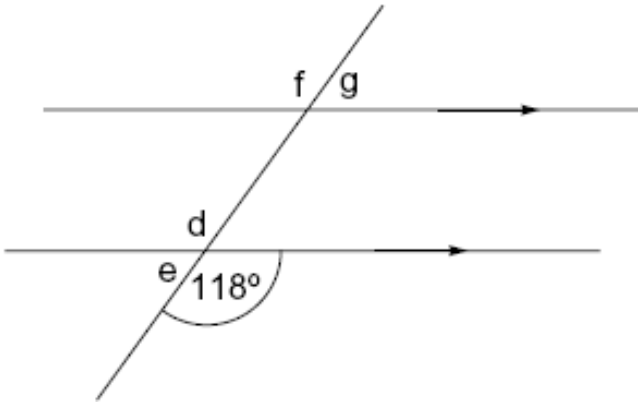
b = 56^0

(Fact 5 – opposite angles)

c = 360 – 56 – 124 – 56 = 124^0

(Fact 2 – angles around a point)

Example 2



d = 118^0

(Fact 5 – opposite angles)

e = 180 – 118 = 62^0

(Fact 1 – angles on a straight line)

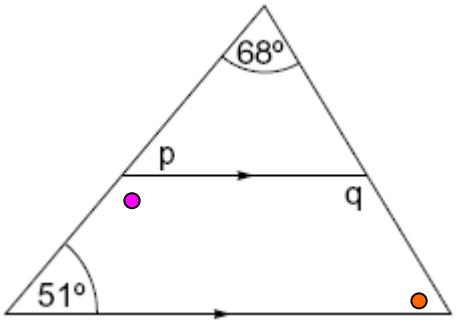
f = 118^0

(Fact 6 – corresponding angles)

g = 180 – 118 = 62^0

(Fact 1 – angles on a straight line)

Example 3



p = 51^0

(Fact 6 – corresponding angles)

To work out q:

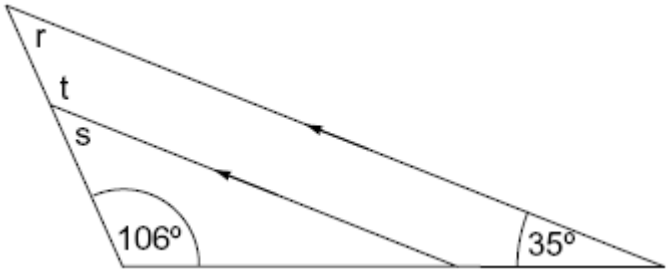
● = 180 – 51 = 129^0 (Fact 1 – angles on a straight line)

● = 180 – 51 - 68 = 61^0 (Fact 3 – angles in a triangle)

q = 360 – 51 – 129 – 61 = 119^0

(Fact 4 –angles in a quadrilateral)

Example 4



r = 180 – 106 – 35 = 39^0

(Fact 3 – angles in a triangle)

s = 39^0

(Fact 6 – corresponding angles)

t = 180 – 39 = 141^0

(Fact 8 – interior angles)

Good luck with your revision!