Angles

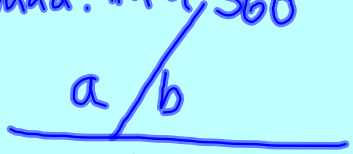
$0 < \text{acute} < 90$

$90 < \text{obtuse} < 180$

$180 < \text{reflex} < 360$

Angles in a triangle total 180°

Angles in a quad. total 360°



$a + b = 180^\circ$

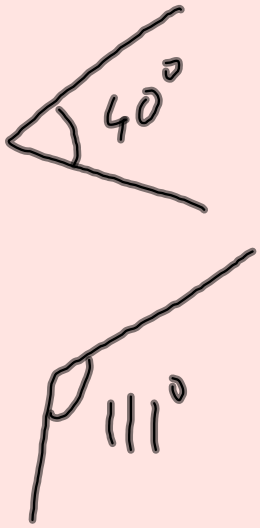
opposite angles are equal

Right angle $= 90^\circ$

Angles round a point total 360°

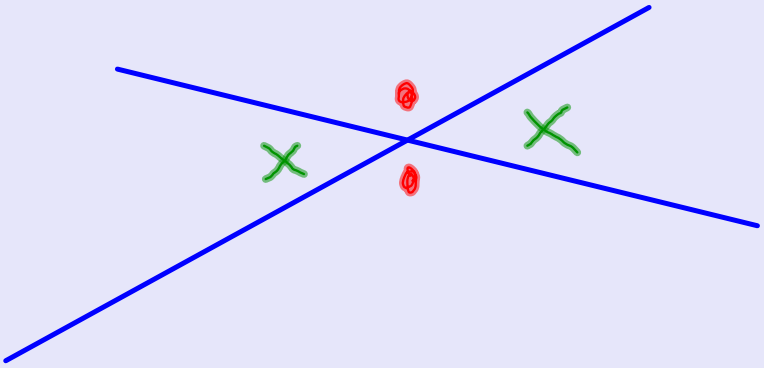
Angles

size	my actual	fred's actual	my points	
40	48°	47°	8	7
111°	110	133	1	22
223°				
340°				



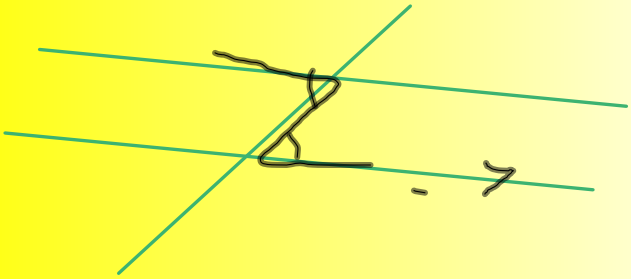
Vertically opposite angles

In your book draw two intersecting lines.
Measure all 4 angles.

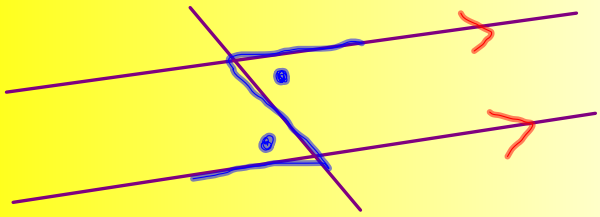


Angle fact 1: Vertically opposite angles are equal.

In your book draw a pair of parallel lines and another line intersecting it. Like this:



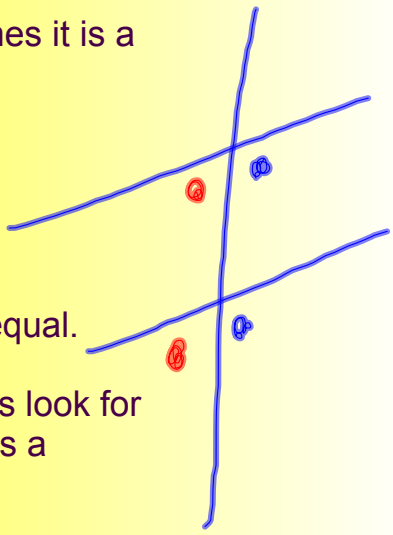
or this:



Angle fact 2:

Alternate angles are equal.

To help find alternate angles look for the Z shape. Sometimes it is a reflected Z:



Angle fact 3:

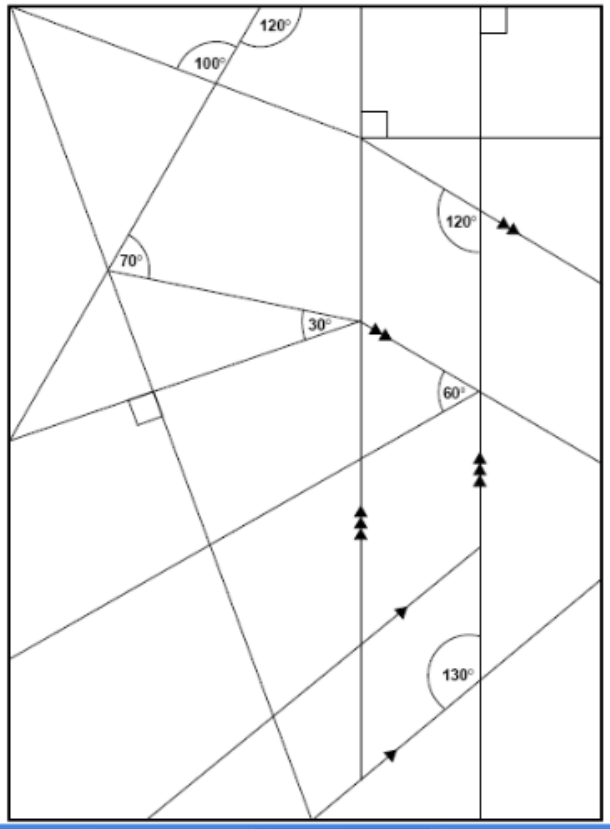
Corresponding angles are equal.

To help find alternate angles look for the F shape. Sometimes it is a reflected F:

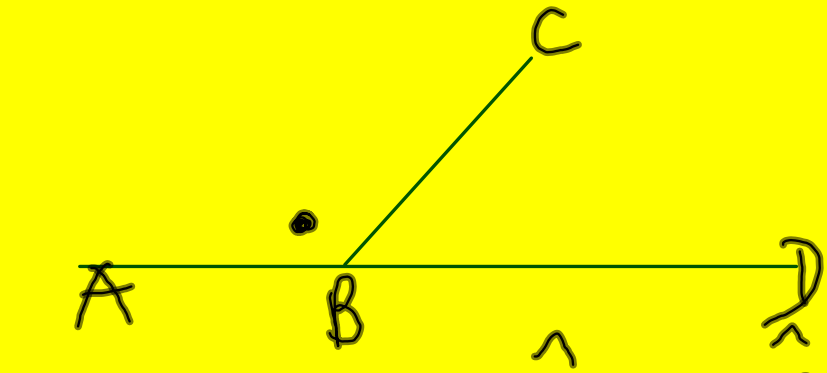
Page 216 A1-16 orally
A17 onwards in exercise books

Unmarked Angles

Work out the unmarked angles inside this rectangle.
(Do not use an angle indicator.)

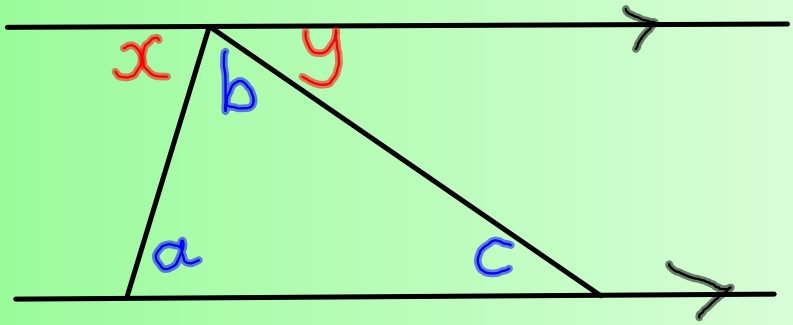


Using proper notation



Angle ABC = $\hat{A}BC$ = $C\hat{B}A$ = $\angle ABC$

Proof that the angle sum of a triangle is 180°



To prove : $a+b+c=180^\circ$

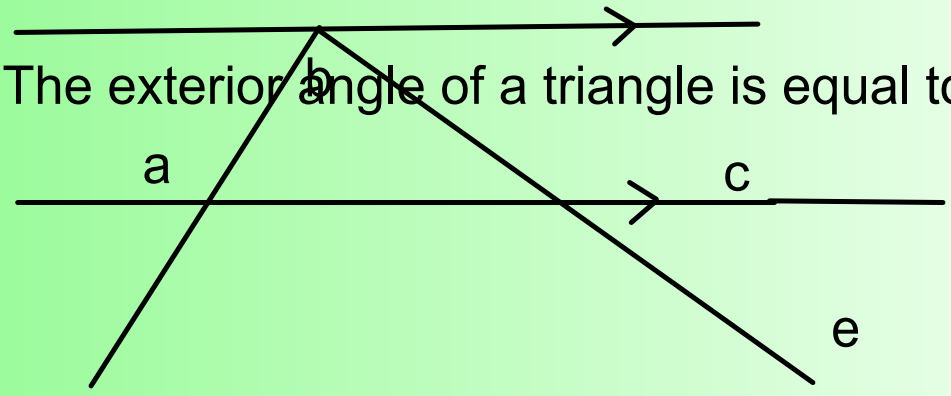
Proof : $\hat{x}=\hat{a}$ (alternate angles are equal)

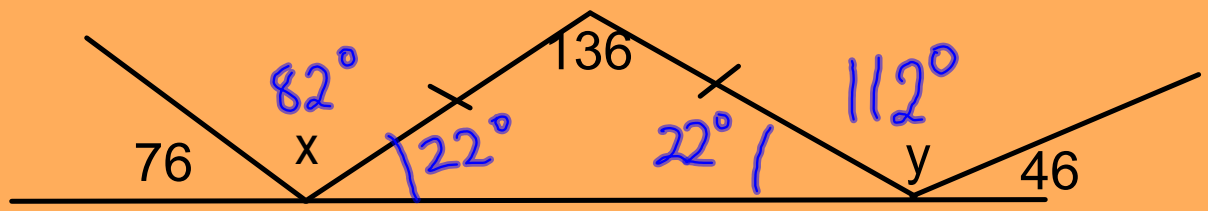
$\hat{y}=\hat{c}$ (alternate angles are equal)

So $x+b+y=180^\circ$ (angles on a straight line total 180°)

$\therefore a+b+c=180^\circ$ QED

The exterior angle of a triangle is equal to .....





82°

22°

22°

112°

180
− 98
82

68

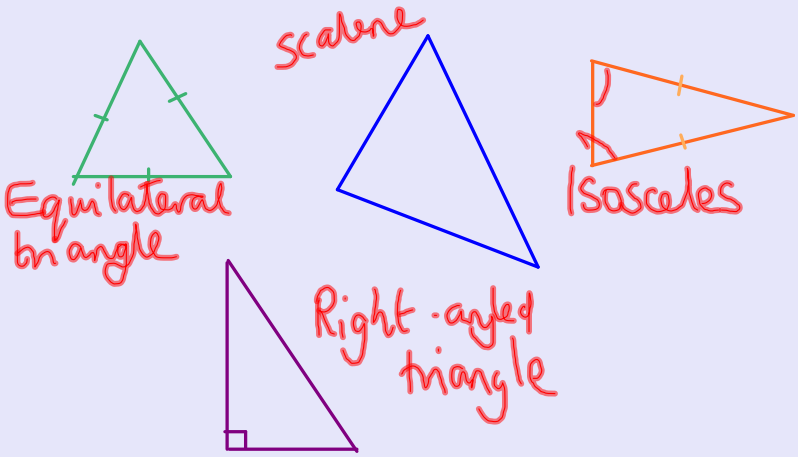
C3

224

Triangles

hwk page 225: B5,B6 and Test Yourself
For Tuesday

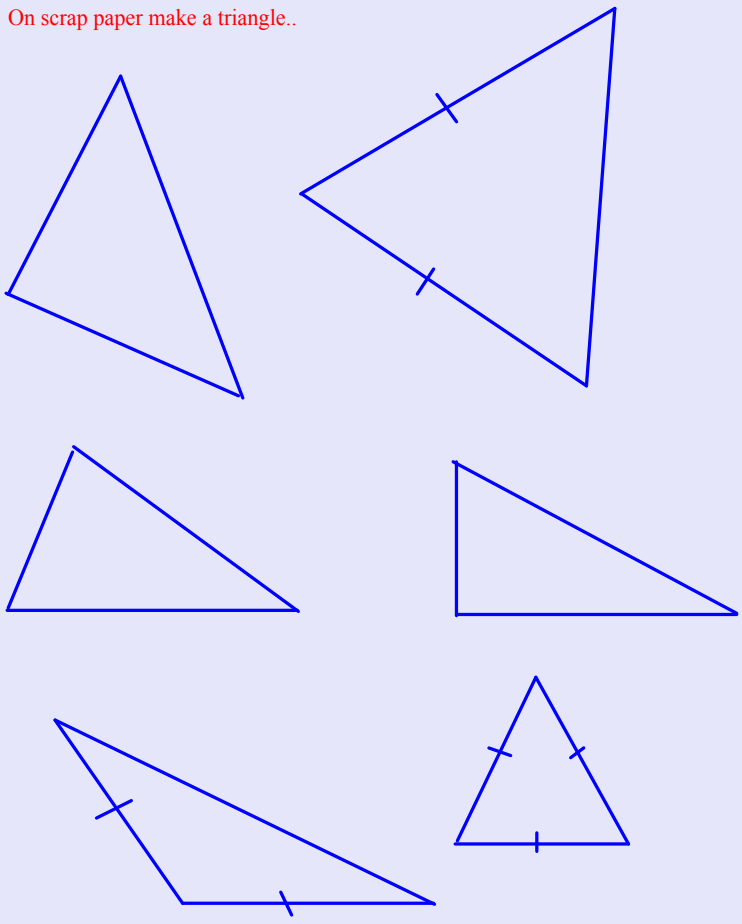
Can you name 4 different types of triangle?



Angles in a triangle

Demonstrate on geometers sketchpad

On scrap paper make a triangle..



Quadrilaterals

Working in pairs how many different ones can you name and draw?

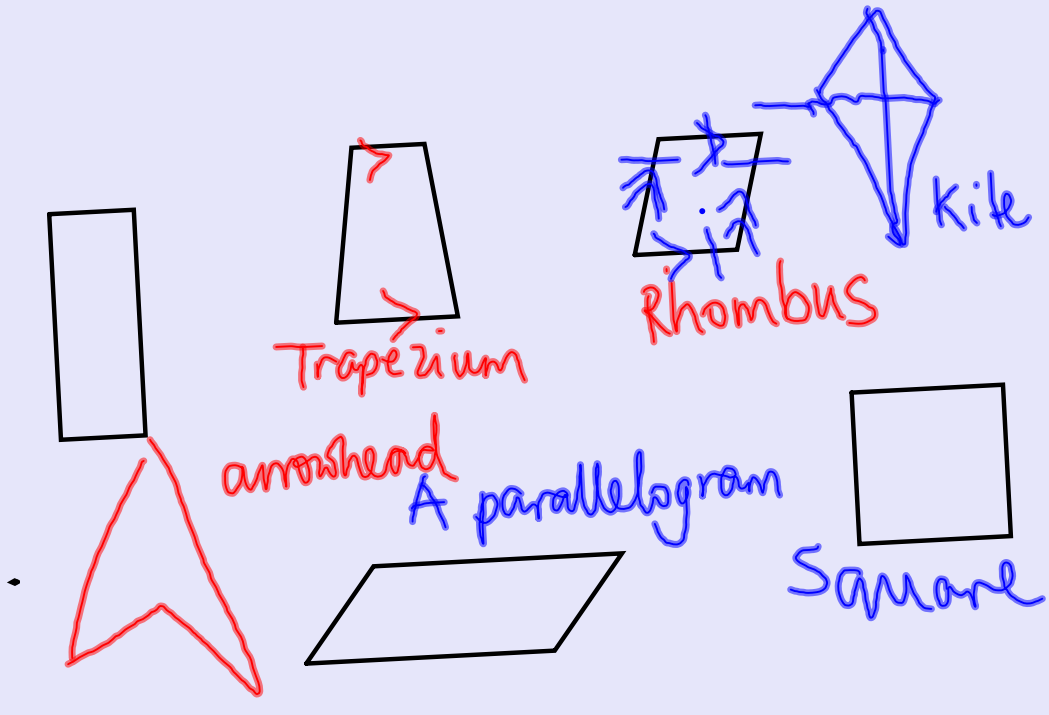
Which ones have parallel sides?

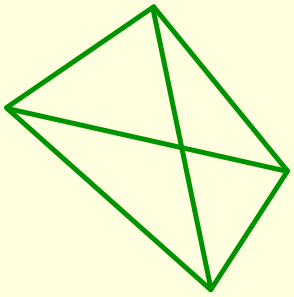
Which ones have right angles?

Which ones have diagonals that bisect each other?

?

Copy chart from wsr
Use gsp

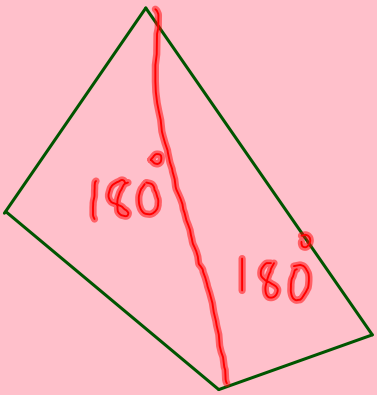




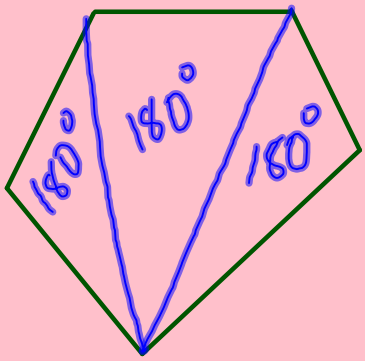
?

4cm	4cm	4cm	4cm	90^0
3cm	6cm	4cm	4cm	90^0
5cm	5cm	5cm	5cm	70^0
3cm	3cm	7cm	7cm	90^0
4cm	4cm	6cm	6cm	80^0
5cm	7cm	5cm	7cm	85^0
6cm	6cm	6cm	6cm	10^0
2cm	2cm	7cm	7cm	110^0

Interior angles of polygons



What is the angle sum?
Convince us!



What about a pentagon?

540°

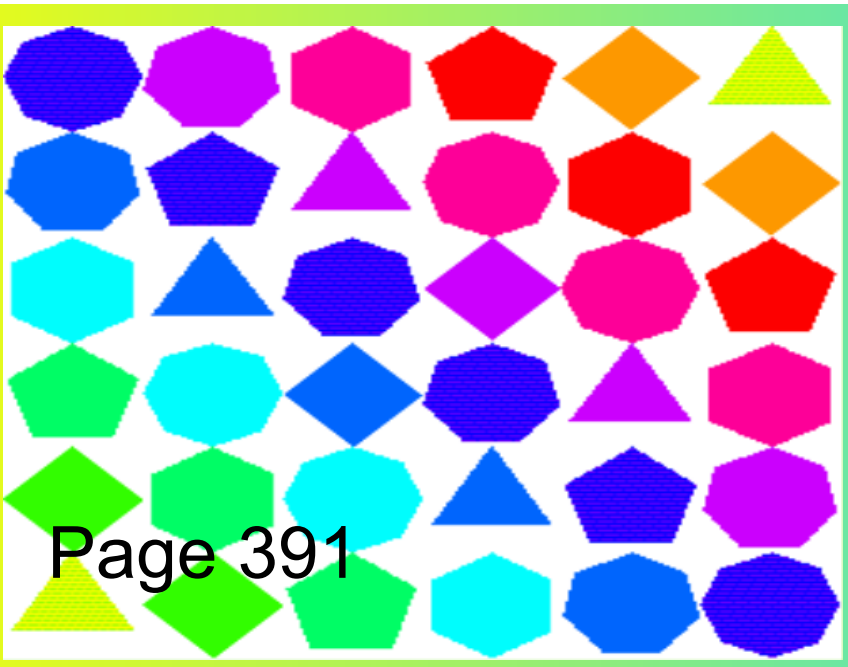
3x180°

Polygon sides	No of triangles	Angle sum
3: triangle	1	180°
4: Quad.	2	2x180=360°
5: Pentagon	3	3x180=540°
6: Hexgon	4	4x180°=720°
7: Septagon	5	5x180=900°
n sides	n-2	(n-2) x 180°

12 10 10x180=1800°

395

Page 394 D4 - D6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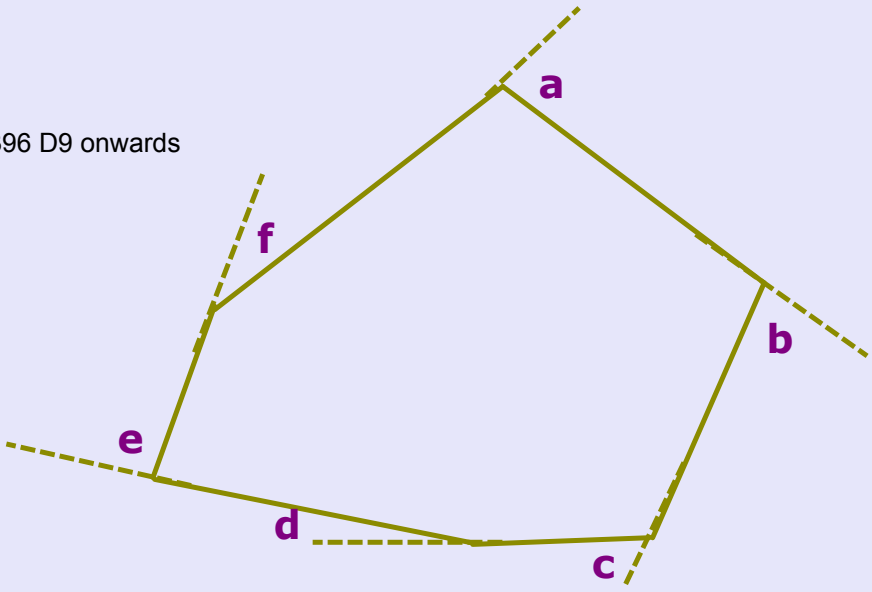
Draw a polygon. It can have however many sides you like but more than 10 will be hard for you to handle.

Page 396 D9 onwards

E1-E3



Extend each side and letter each angle.

Measure each angle.

Attachments

YR 7 SSM2.doc

angles.gsp

angles in polygons.ppt

Angle properties.gsp