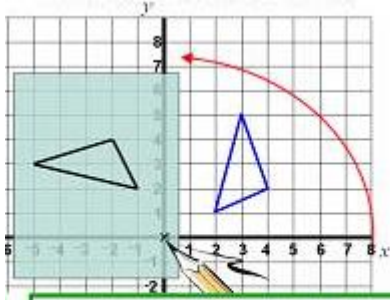


Year 10 Foundation Tier Learn Sheet December 2016

Transformations:

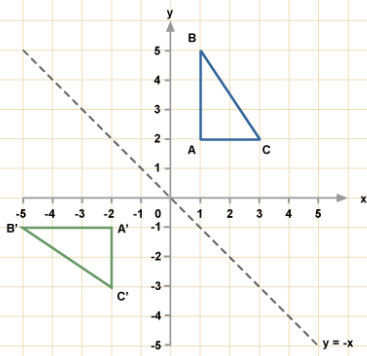
Rotation needs: angle, direction, centre of rotation
eg rotation 90° anticlockwise about (0,0)



Rotate the tracing paper by 90° anticlockwise and go over shape on tracing

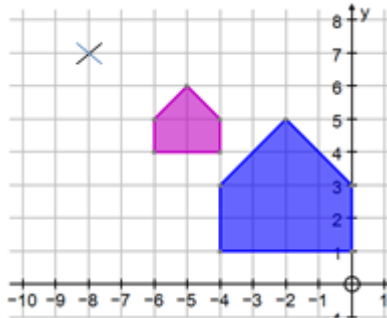
Reflection

needs a mirror line and the shape is the same distance away on the other side



Enlargement

needs: a scale factor and a centre of enlargement
eg. Enlarge the small pentagon by a scale factor 2 about (-8,7)



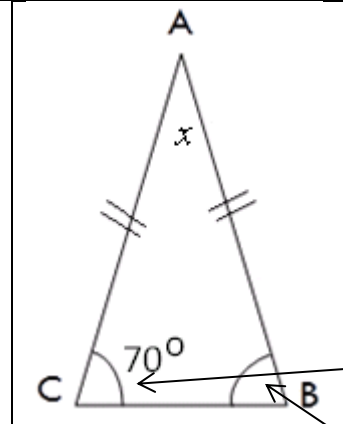
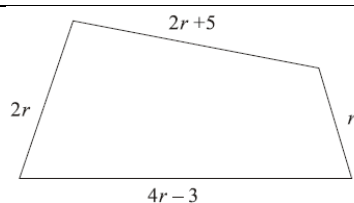
Translation

needs: a 'vector'
Number across
Number up/down

$$\begin{pmatrix} 5 \\ -3 \end{pmatrix}$$

Forming an equation

eg. In the diagram, all measurements are in centimetres. The lengths of the sides of the quadrilateral are $2r + 5$, $2r$, $4r - 3$, r



Two sides are equal (dashes) and two angles are equal in an isosceles triangle. Learn the spelling 'isosceles'.

If angle $ACB = 70^\circ$ then this angle must also be 70°

Calculate the size of angle x

Angles in a triangle add up to 180°

$$x = 180 - (70 + 70) = 180 - 140 = 40^\circ$$

Two-way tables:

Felicity asked 100 students how they came to school one day. Each student walked or came by bicycle or came by car.

- 49 of the 100 students are girls.
- 10 of the girls came by car.
- 16 boys walked.
- 21 of the 41 students who came by bicycle are boys.

Work out the total number of students who walked to school.

Make a table with the different information in lines and columns

| | car | walk | bike | total |
|-------|-----|------|------|-------|
| boys | | | | |
| girls | | | | |
| total | | | | |

Then put in the information you are told:

49 of the 100 students are girls

| | car | walk | bike | total |
|-------|-----|------|------|-------|
| boys | | 16 | | |
| girls | 10 | | | 49 |
| total | | | | 100 |

10 girls came by car, 16 boys walked

See if you can fill in the rest! (the answer is 35 walk)

(a) Find an expression, in terms of r , for the perimeter of the quadrilateral. Give your expression in its simplest form.

(you need to add up the letters and numbers separately)

$$2r + 5 + 2r + 4r - 3 + r = 9r + 2$$

$$2r + 2r + 4r + r = 9r$$

The perimeter of the quadrilateral is 65 cm.

(b) Work out the value of r . (you need to solve an equation)

$$9r + 2 = 65$$

$$9r = 63$$

$$r = 7$$

Topics to revise

| |
|---|
| name triangles; measure angles, lengths |
| Bar graphs |
| Reading tables |
| Converting units |
| Directed numbers |
| Addition/subtraction problem |
| Reading train timetable |
| Addition of lengths |
| Perimeter and area |

| |
|------------------------------------|
| coordinates; equations of lines |
| Combination list |
| Best buy |
| Read scales; km/litres |
| Money in context |
| Sequences |
| Number machines |
| BIDMAS, square roots |
| Estimation |
| Probability |
| Money in context |

| |
|--|
| Isosceles triangle angles calculation |
| Distance/time graphs |
| Solving equations, brackets |
| Two-way tables |
| Symmetry; tessellations |
| transformations |
| Percentages, fractions of amounts |
| Forming an equation |
| Straight line graph calculations with the mean |

