J2 *Further Transformations* Activities

Activities

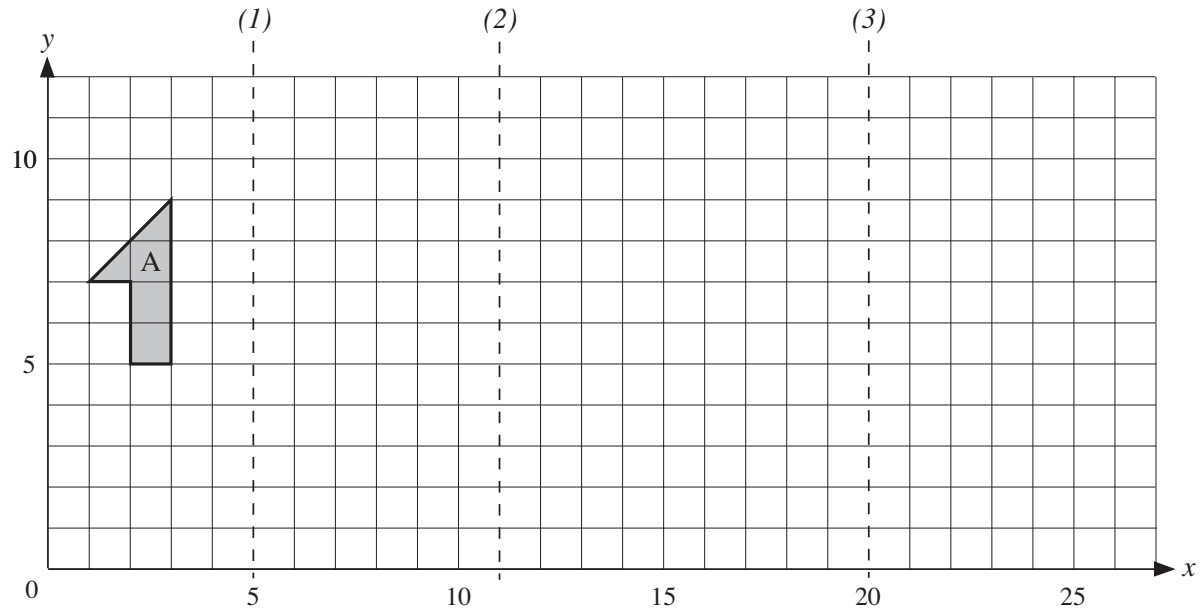
J2.1 Repeated Reflections
J2.2 Transformations

Notes and Solutions (1 page)

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ACTIVITY J2.1 *Repeated Reflections*

The diagram below shows a shape, A, and mirror lines, 1, 2 and 3. Copy the diagram and then carry out the reflections and answer the questions below.



1. Reflect *shape A* in *mirror line 1* and label it B.

2. Reflect *shape B* in *mirror line 2* and label it C.

3. Reflect *shape C* in *mirror line 3* and label it D.

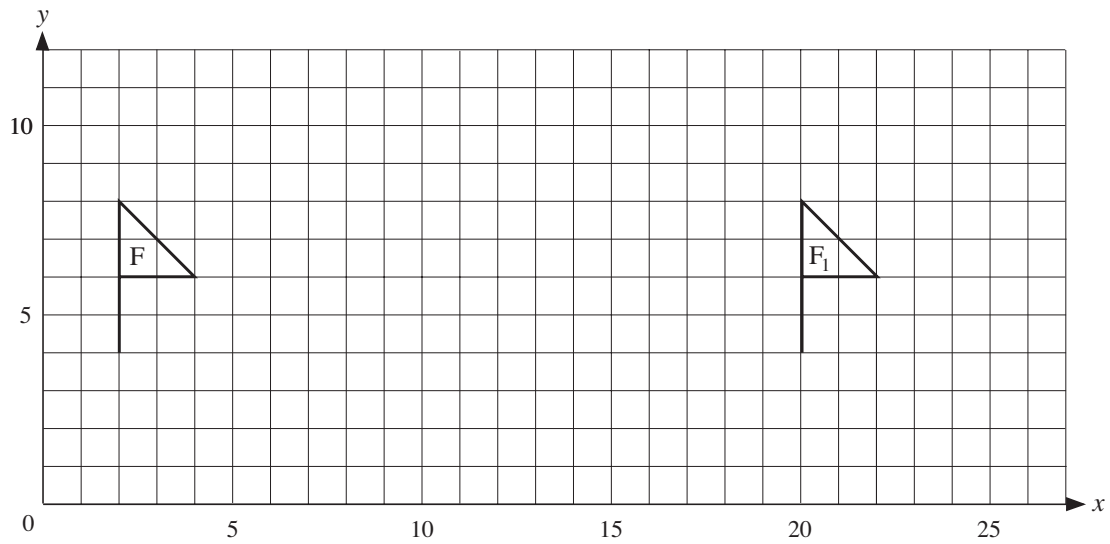
4. *Shape D* can be obtained from *shape A* by just one reflection.
   Draw the required mirror line on your diagram and label it 4.
   What is the equation of this line?

5. Repeat steps 1–4 on a new diagram using your own shape.
   Does your answer to Question 4 remain the same?

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ACTIVITY J2.2 *Transformations*

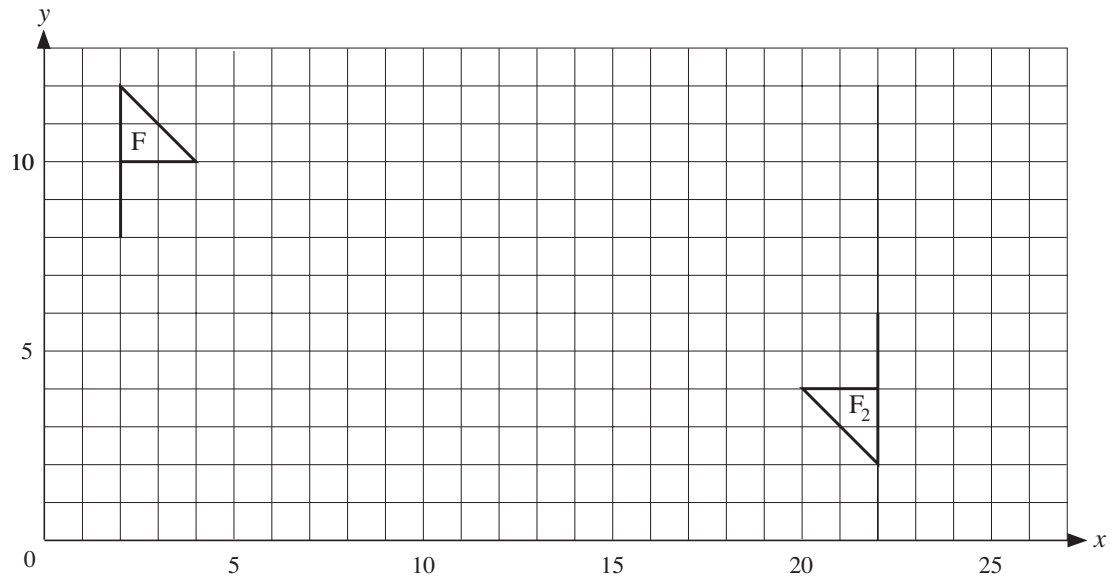
1 (a) F is mapped onto F_1 under a translation. What is the translation?



(b) (i) Describe how F can be mapped onto F_1 using two successive reflections.

(ii) In how many different ways can this be done?

2 (a) F is mapped onto F_2 under a rotation. Describe this rotation.



(b) (i) Describe how F can be mapped onto F_2 using two successive reflections.

(ii) Is your answer the only way that it can be done?

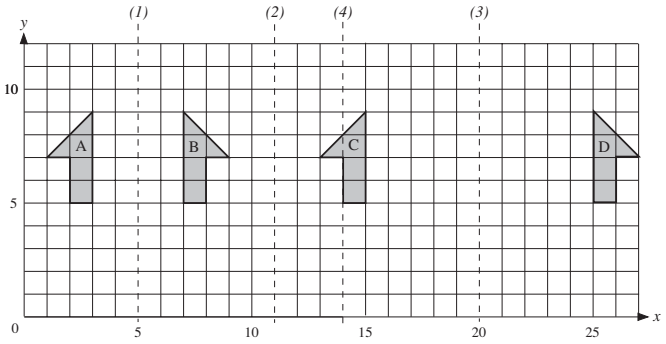
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ACTIVITIES J2.1 - J2.2 *Notes and Solutions*

Notes and solutions given only where appropriate.

J2.1 1, 2, 3 and 4 shown on diagram.

Equation of mirror line 4 is $x = 14$.



J2.2 1. (a) $\begin{pmatrix} 18 \\ 0 \end{pmatrix}$

(b) (i) e.g. reflect F in line $x = 8$ and then reflect in line $x = 17$.

(ii) Infinite number

2. (a) Rotation, 180° about (12, 7)

(b) (i) Reflect in $x = 12$, and in $y = 7$

(ii) You can change the order, i.e. reflect in $y = 7$ and then $x = 12$

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