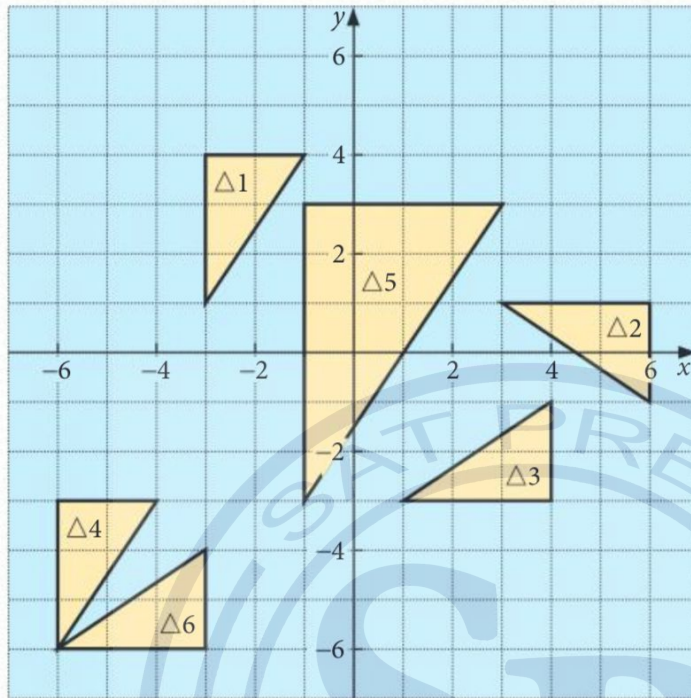


SATPREP

Assignment : Transformation

1. a) Copy the diagram below.



b) Describe fully the following transformations:

i) $\Delta 1 \rightarrow \Delta 2$

ii) $\Delta 1 \rightarrow \Delta 3$

iii) $\Delta 4 \rightarrow \Delta 1$

iv) $\Delta 1 \rightarrow \Delta 5$

v) $\Delta 3 \rightarrow \Delta 6$

vi) $\Delta 6 \rightarrow \Delta 4$

2. Plot and label the following triangles:

$\Delta 1: (-5, -5), (-1, -5), (-1, -3)$

$\Delta 2: (1, 7), (1, 3), (3, 3)$

$\Delta 3: (3, -3), (7, -3), (7, -1)$

$\Delta 4: (-5, -5), (-5, -1), (-3, -1)$

$\Delta 5: (1, -6), (3, -6), (3, -5)$

$\Delta 6: (-3, 3), (-3, 7), (-5, 7)$

Describe fully the following transformations:

a) $\Delta 1 \rightarrow \Delta 2$

b) $\Delta 1 \rightarrow \Delta 3$

c) $\Delta 1 \rightarrow \Delta 4$

d) $\Delta 1 \rightarrow \Delta 5$

e) $\Delta 1 \rightarrow \Delta 6$

f) $\Delta 5 \rightarrow \Delta 3$

g) $\Delta 2 \rightarrow \Delta 3$

3. Plot and label the following triangles:

$\Delta 1: (-3, -6), (-3, -2), (-5, -2)$

$\Delta 2: (-5, -1), (-5, -7), (-8, -1)$

$\Delta 3: (-2, -1), (2, -1), (2, 1)$

$\Delta 4: (6, 3), (2, 3), (2, 5)$

$\Delta 5: (8, 4), (8, 8), (6, 8)$

$\Delta 6: (-3, 1), (-3, 3), (-4, 3)$

Describe fully the following transformations:

a) $\Delta 1 \rightarrow \Delta 2$

b) $\Delta 1 \rightarrow \Delta 3$

c) $\Delta 1 \rightarrow \Delta 4$

d) $\Delta 1 \rightarrow \Delta 5$

e) $\Delta 1 \rightarrow \Delta 6$

f) $\Delta 3 \rightarrow \Delta 5$

g) $\Delta 6 \rightarrow \Delta 2$

Answer

1. **b) i)** Rotation 90° clockwise, centre $(0, -2)$
- iii)** Translation $\begin{pmatrix} 3 \\ 7 \end{pmatrix}$
- v)** Translation $\begin{pmatrix} -7 \\ -3 \end{pmatrix}$
2. **a)** Rotation 90° clockwise, centre $(4, -2)$
- c)** Reflection in $y = x$
- e)** Rotation 90° anticlockwise, centre $(-8, 0)$
- g)** Rotation 90° anticlockwise, centre $(7, 3)$
3. **a)** Enlargement, scale factor $1\frac{1}{2}$, centre $(1, -4)$
- c)** Reflection in $y = -x$
- e)** Enlargement, scale factor $\frac{1}{2}$, centre $(-3, 8)$
- g)** Enlargement, scale factor 3, centre $(-2, 5)$
- ii)** Reflection in $y = x$
- iv)** Enlargement, scale factor 2, centre $(-5, 5)$
- vi)** Reflection in $y = x$
- b)** Translation $\begin{pmatrix} 8 \\ 2 \end{pmatrix}$
- d)** Enlargement, scale factor $\frac{1}{2}$, centre $(7, -7)$
- f)** Enlargement, scale factor $\frac{1}{2}$, centre $(-1, -9)$
- b)** Rotation 90° clockwise, centre $(0, -4)$
- d)** Translation $\begin{pmatrix} 11 \\ 10 \end{pmatrix}$
- f)** Rotation 90° anticlockwise, centre $(\frac{1}{2}, 6\frac{1}{2})$

