Worksheet on Translations (Years 7 -11)

Question:

(i) Describe the translation (or write down the vector of translation) that maps:

(a) Shape A to shape B.
(b) Shape B to shape C.
(c) Shape C to shape D.
(d) Shape A to shape D.
(e) Shape D to shape A.
(f) Shape C to shape B.

(ii) Draw the image of shape E under the translation vector:

(a) \(\begin{pmatrix} 2 \\ 0 \end{pmatrix}\) label the image F.

(b) \(\begin{pmatrix} 3 \\ -2 \end{pmatrix}\) label the image G.

(c) \(\begin{pmatrix} 5 \\ -2 \end{pmatrix}\) label the image H.

(iii) Describe the translation (or write down the vector of translation) that maps:

(a) Shape H to shape G.
(b) Shape H to shape F.
(c) Shape G to shape F.

SEE DIAGRAM ON THE NEXT PAGE
**Answers:**

(i)

(a) Shape A to shape B. \( \begin{pmatrix} 2 \\ 3 \end{pmatrix} \)

(b) Shape B to shape C. \( \begin{pmatrix} -8 \\ -1 \end{pmatrix} \)

(c) Shape C to shape D. \( \begin{pmatrix} -5 \\ -3 \end{pmatrix} \)

(d) Shape A to shape D. \( \begin{pmatrix} -11 \\ -1 \end{pmatrix} \)

(e) Shape D to shape A. \( \begin{pmatrix} 11 \\ 1 \end{pmatrix} \)

(f) Shape C to shape B. \( \begin{pmatrix} 8 \\ 1 \end{pmatrix} \)

(ii) see diagram on the next page.

(iii) (a) Shape H to shape G. Vector \( \begin{pmatrix} -2 \\ 0 \end{pmatrix} \)

(b) Shape H to shape F. Vector \( \begin{pmatrix} -3 \\ 2 \end{pmatrix} \)

(c) Shape G to shape F. Vector \( \begin{pmatrix} -1 \\ 2 \end{pmatrix} \)
I hope you find this useful. Please let me know if you find any errors.