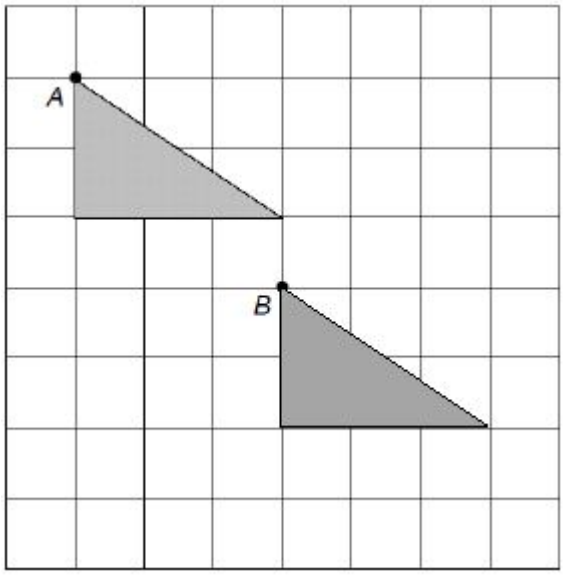
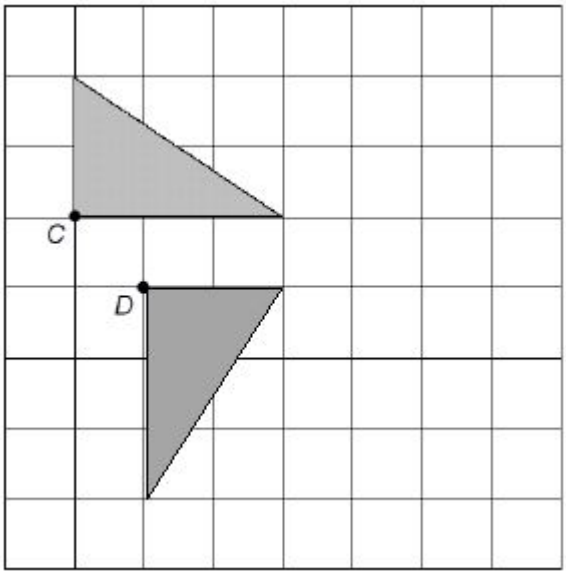
Q1.

(a) Correct translation drawn



B1

(b) Correct rotation drawn



B1 for correct rotation but incorrect position on grid.

B2

[3]

Q2.

(a) 3, × 3, 'times 3', '1:3'

Ignore units

B1

(b) **Alternative method 1**

2 and 18 seen

Can be seen in a subtraction or on diagram

M1

9

A1

Alternative method 2

3^2

ft their sf 3 × 3

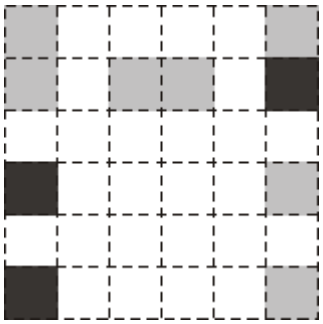
M1

9

A1ft

[3]

Q3.

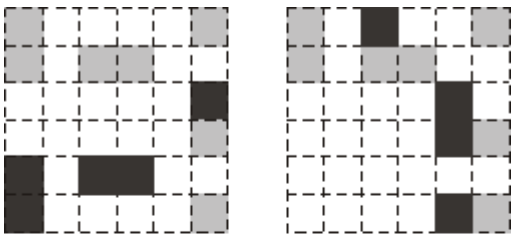


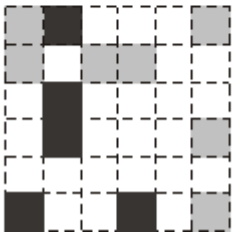
Mark bottom grid unless blank

B1 for up to 5 squares shaded with at least 2 correct

or

B1 for any of these three patterns





B2

[2]

Q4.

Enlarge(ment)

Allow poor spelling but do not accept any word that may imply a 'shrink' eg delargement

B1

$(\text{Scalefactor})\frac{1}{3}$

Implied by word 'by' or 'of'
If decimal 0.33 minimum
Do not accept ratio, eg 3 : 1 or 1 : 3

B1

(centre) (10, 10) or 10, 10

Do not accept $\begin{pmatrix} 10 \\ 10 \end{pmatrix}$

If no centre given in script look on diagram for rays clearly showing centre at (10, 10)

B1

Additional Guidance

Any combined transform

B0

Enlarge factor 3 from (10, 10)

B2

Enlarged by 1/3 from (1, 4)

Enlarge by scale factor –3 from (10, 10)

B2

Shrink of 1/3 from (8, 10)

B1

Enlarged factor ÷ 3 from (4, 10)

B1

3 times smaller

B0

[3]

Q5.

(a) Correct reflection with mirror line shown

B1

(b) Correct enlargement

B1

[2]

Q6.

Enlargement

B1

(scale factor) $\frac{1}{3}$

oe

B1

(centre) origin

oe

B1

[3]

Q7.

(a) Correct 90° clockwise rotation

B1 for a 90° anticlockwise rotation

B2

(b) Correct enlargement

B1 for any enlargement

B2

(c) $\frac{1}{2}$ × 9 × 6 *oe*

or $\frac{1}{2}$ × 3 × 2 × 3^2

M1

27

ft their triangle

A1ft

[6]

Q8.

(a) Line $x = -2$ drawn

B1

Additional Guidance

Line does not need to be full length of grid.

Line can be solid or dashed.

(b) Line $y = x$ drawn

B1

Additional Guidance

Line does not need to be full length of grid.

Line can be solid or dashed.

(c) Translation

Accept Translate

B1

9 right and 8 down

or $\begin{pmatrix} 9 \\ -8 \end{pmatrix}$

Accept (9, −8)

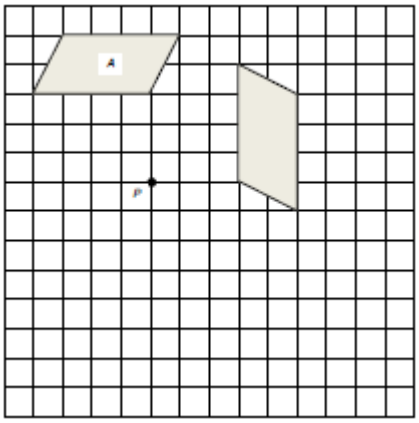
B1

Additional Guidance

(y = −8, x = 9) is B0 B0

[4]

Q9.



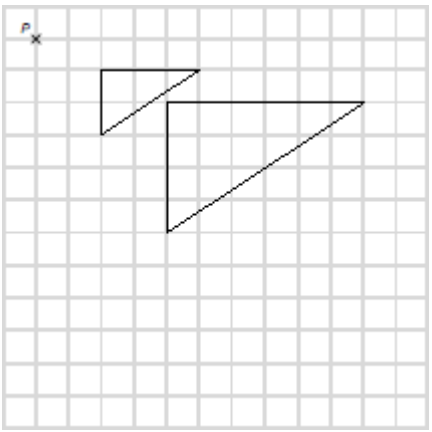
B2 for rotation of parallelogram 90° anticlockwise about P
or correct four vertices plotted but not joined
B1 for any rotation of parallelogram 90°
or correct four vertices plotted but not joined for rotation of parallelogram 90° anticlockwise about P

B3

[3]

Q10.

(a) Fully correct enlargement in correct position



B2 for enlargement SF2, wrong position
or for 3 correct vertices plotted but no triangle drawn

B1 for any other enlargement not SF1
or for 2 correct vertices plotted

B3

Additional Guidance
Mark intention

(b) **Alternative method 1**
Rotation

B1

Origin or (0, 0) or *O*
oe

B1

180 (clockwise)

or 180 (anticlockwise)

or −180
oe

B1

Alternative method 2
Enlargement and SF −1

B2

Origin or (0, 0) or *O*
oe

B1

Additional Guidance
Rotation, (0, 0), 90 then 90

B1B1B0

Accept 180C for 180 (clockwise)

B1

Accept ½ turn for 180

B1

Accept $\begin{pmatrix}0\\0\end{pmatrix}$ for origin

B1

Enlargement (0, 0)

B0B1

Allow rotate, rotating, rotational (symmetry)

B1

Mixed transformations, e.g.

translation of 180

B0B0B1

reflection (0, 0)

B0B1B0

Do not accept turn for rotation

B0

Double transformations e.g. Rotate, translate

B0B0B0

[6]

Q11.

(a) Rotation

oe

B1

90° clockwise
or 270° anti-clockwise

B1

(–1, 0)

B1

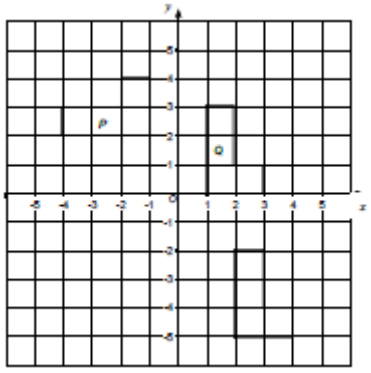
Additional Guidance

More than one transformation

B0

Accept ¼ turn clockwise for 90° clockwise

(b)



B1 for translation 1 unit right
or for translation 5 units down

SC1 for P translated $\begin{pmatrix} 1 \\ -5 \end{pmatrix}$

B2

[5]

Q12.

Fully correct enlargement with vertices at (−3, −4), (−4, −2) and (−4, −4)

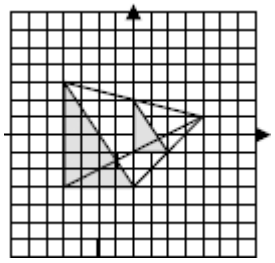
B1 for any enlargement SF $\frac{1}{3}$

B1 for 2 correct vertices

B2

[2]

Q13.



B1 for any correctly sized triangle anywhere.

B1 for 2 vertices correct.

B1 for at least two rays from corners through (4, 1)

B2

[2]