

**GRADE 10 ESSENTIAL  
UNIT G – TRANSFORMATIONS**

**WORKBOOK**

1. **Plot** and **label** the following points on the Cartesian  $(x, y)$  grid.

**Alpha**  $(0, 7)$

**Bravo**  $(4, 3)$

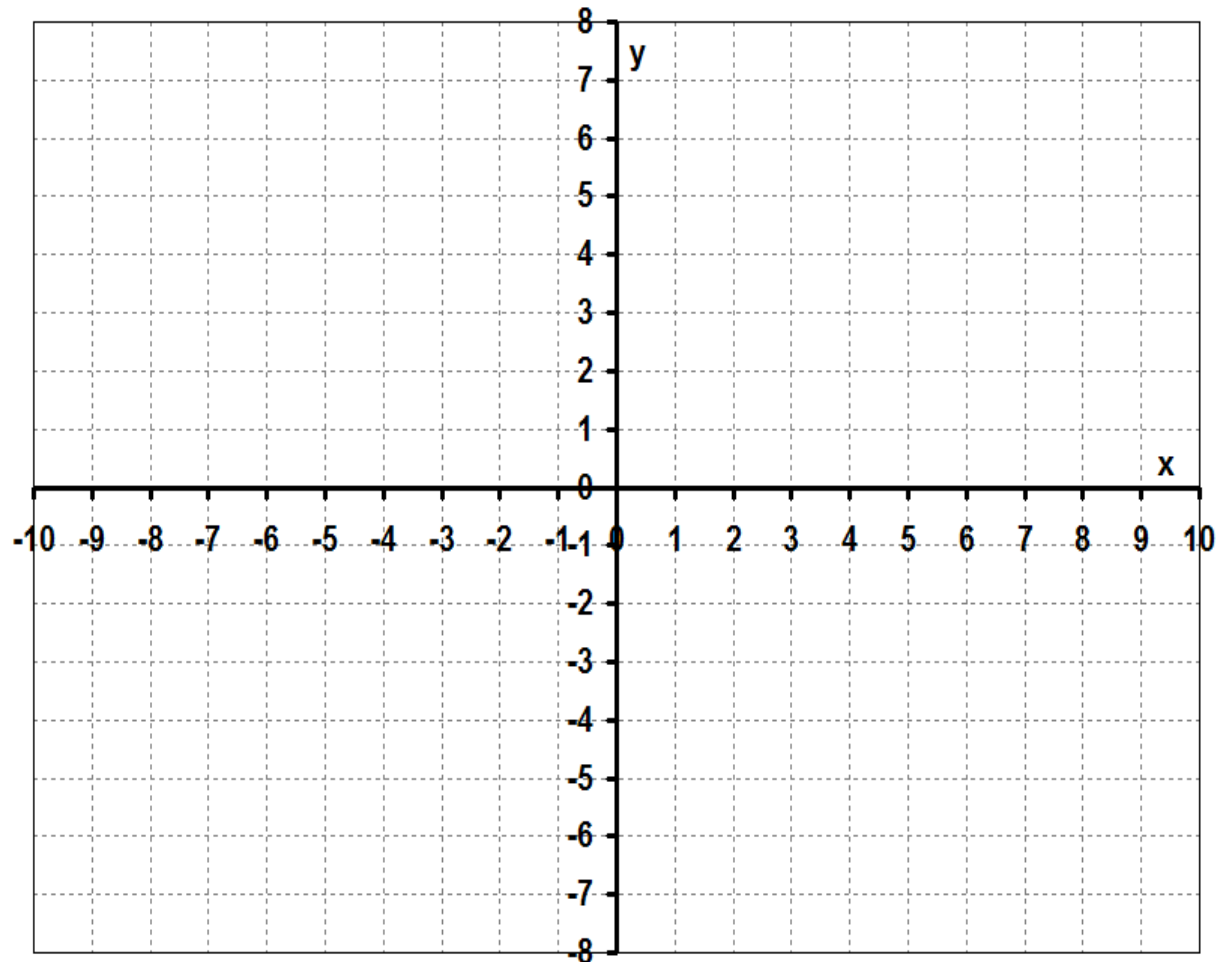
**Charlie**  $(-7, 8)$

**Delta**  $(-3, -5)$

**Echo**  $(8, -6)$

**Foxtrot**  $(0, 0)$   
'Origin'

**Gulf**  $(-9, 4)$



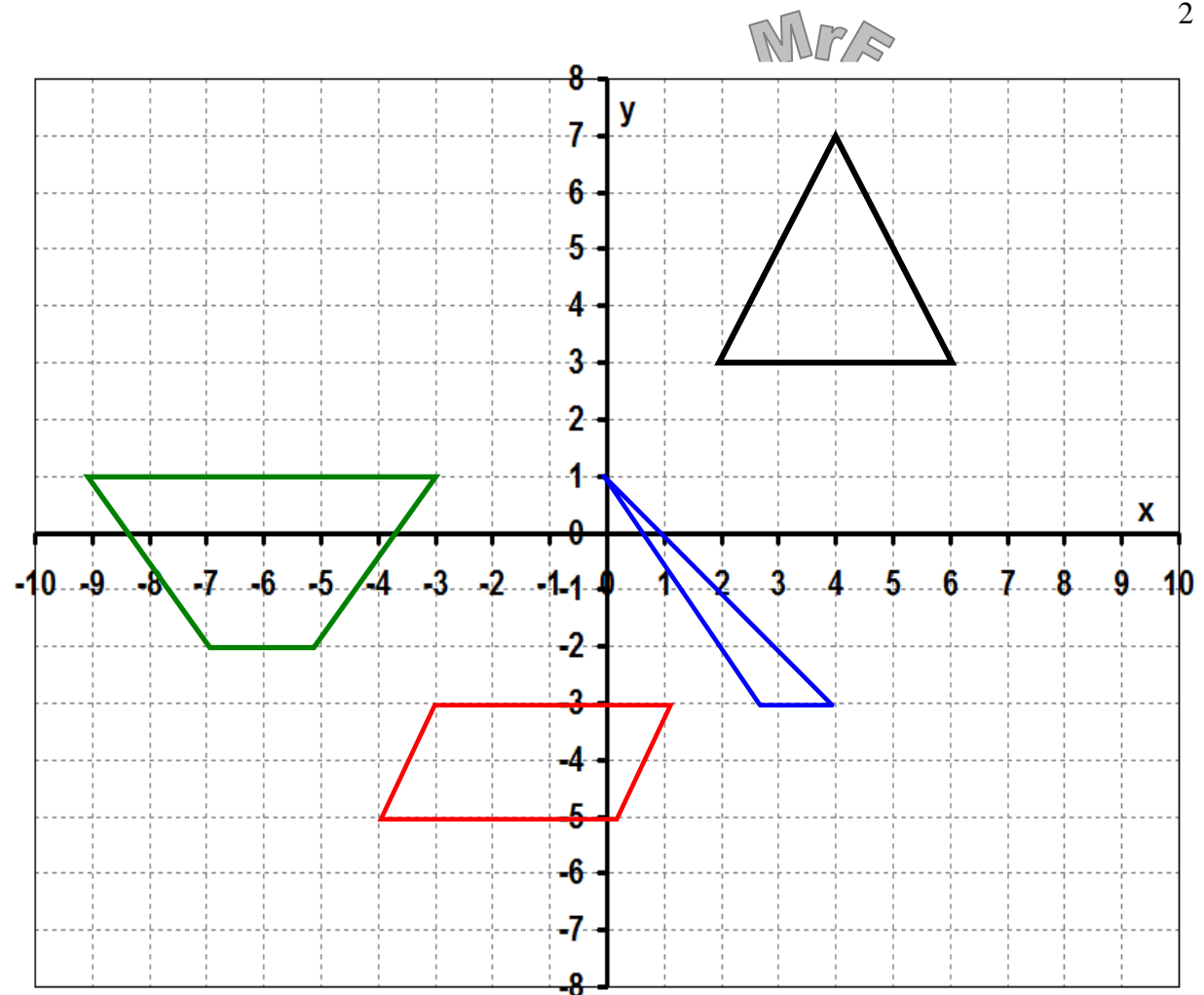
2. Perform a **translation** of the figures at the right by the indicated transformation:

a. the isosceles triangle  
(L3, D2).

b. the parallelogram  
(-3, +4)

c. the trapezoid  
(R2, U4).

d. the obtuse triangle by  
 $\begin{bmatrix} 3 \\ -5 \end{bmatrix}$



3. Perform a **reflection** of the figures by the indicated transformation:

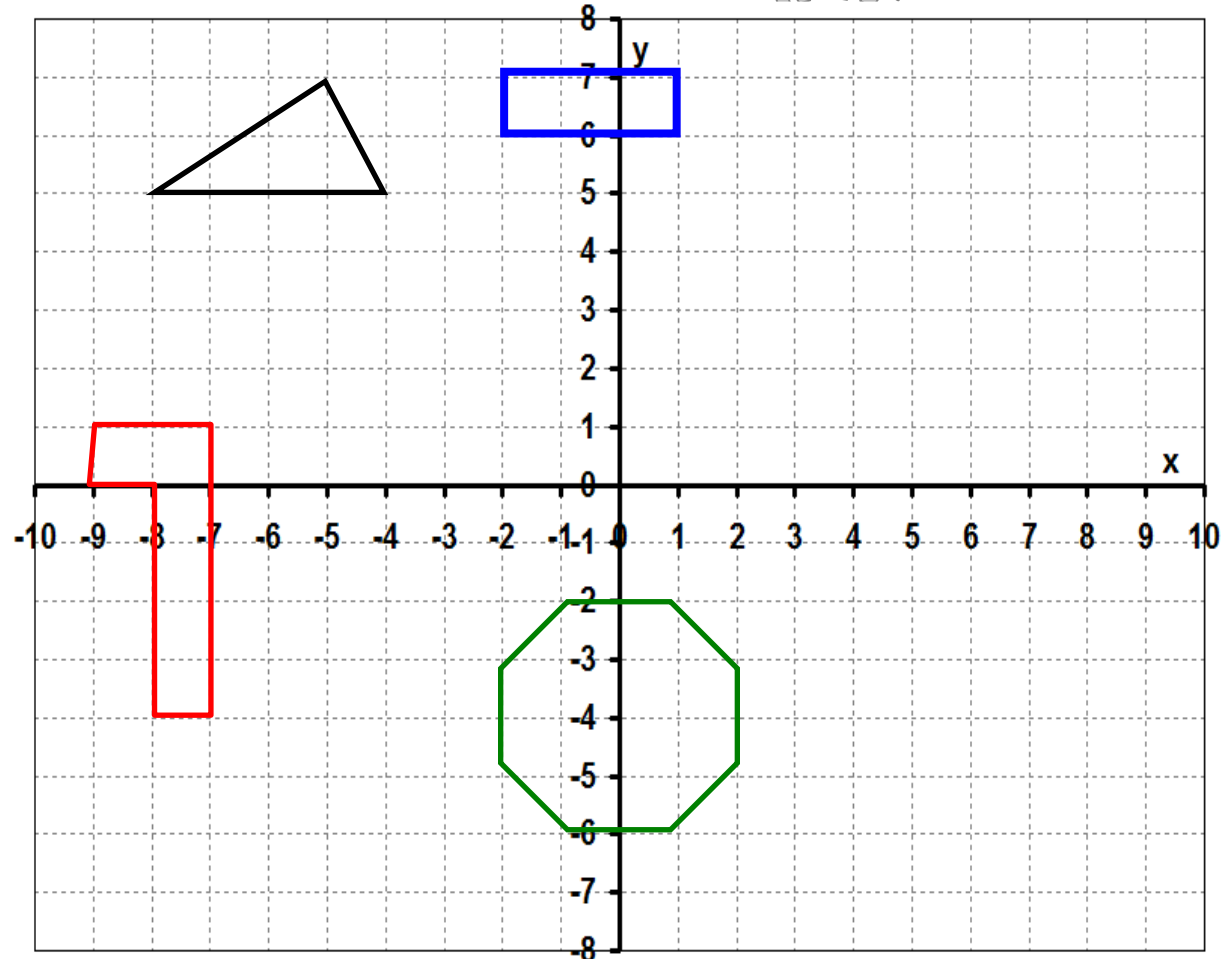
a. acute triangle across the y-axis.

b. irregular rectilinear shape through the x-axis.

c. octagon through the y-axis.

d. rectangle through the x-axis *and then* through the y-axis.

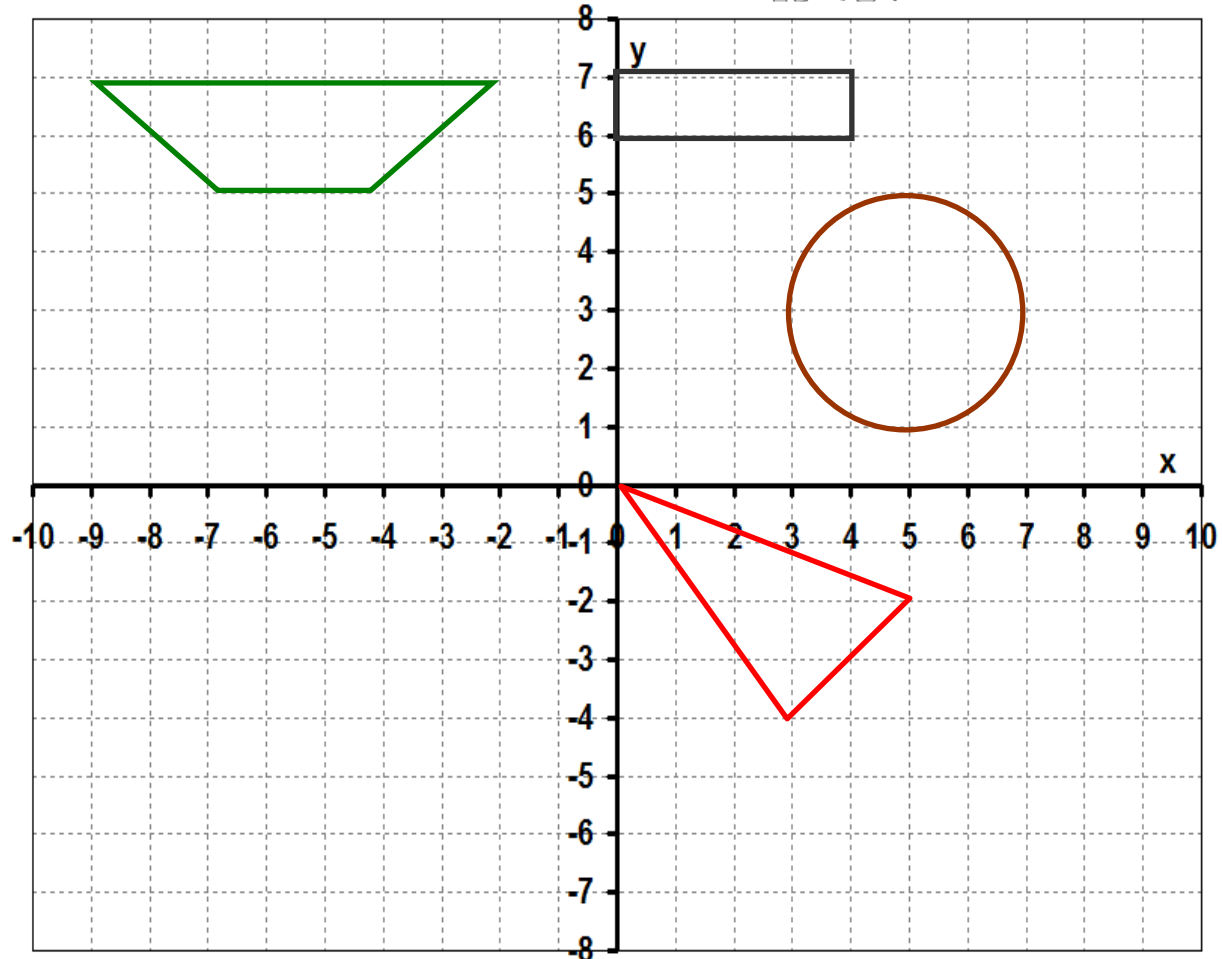
e. octagon through the x-axis.



MrF

4. Perform a **rotation** about the origin  $(0, 0)$  for the following as indicated.

- the rectangle, a  $90^\circ$  clockwise rotation.
- the acute triangle, a  $180^\circ$  rotation.
- the trapezoid, a  $90^\circ$  rotation anti-clockwise.
- the circle, a  $90^\circ$  rotation clockwise about the origin **then** a reflection through the y-axis.
- you do one of your own.



MrF

5. Perform a **rotation** as indicated.

a. the 'window', a  $90^\circ$  clockwise rotation around the centre of rotation point P

b. the triangle, a  $90^\circ$  rotation anti-clockwise about the point A.

6. Perform a **reflection** as indicated:

a. the happy face; a reflection across the horizontal line  $y = -4$ .

b. the rhombus (leaning square), a reflection through the vertical line  $x = 4$ .

