

PRACTISING THE ESSENTIALS OF COORDINATE GEOMETRY.
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A quadrilateral ABCD has coordinates A(0, 12), B(6, 0), C(12, 6), D(10, 22).

1. Find the gradients of:

(i) AB

(ii) BC

(iii) CD

(iv) DA

What type of quadrilateral is ABCD?

2. Find the lengths of:

(i) AB

(ii) BC

(iii) CD

(iv) DA

3. Find the coordinates of P, the **mid point** of AB

Find the coordinates of Q, the **mid point** of BC

Find the coordinates of R, the **mid point** of CD

Find the coordinates of S, the **mid point** of DA

Find the coordinates of T, the **mid point** of the diagonal AC

4. Find the equation of the **median** from A to BC in triangle ABC

Find the equation of the **median** from B to AC in triangle ABC

Find the equation of the **median** from C to AB in triangle ABC

What is the name of the point U which is where the **medians intersect**?

Calculate the coordinates of U.

5. Find the equation of the **mediator** (perpendicular bisector) of AD in triangle ACD

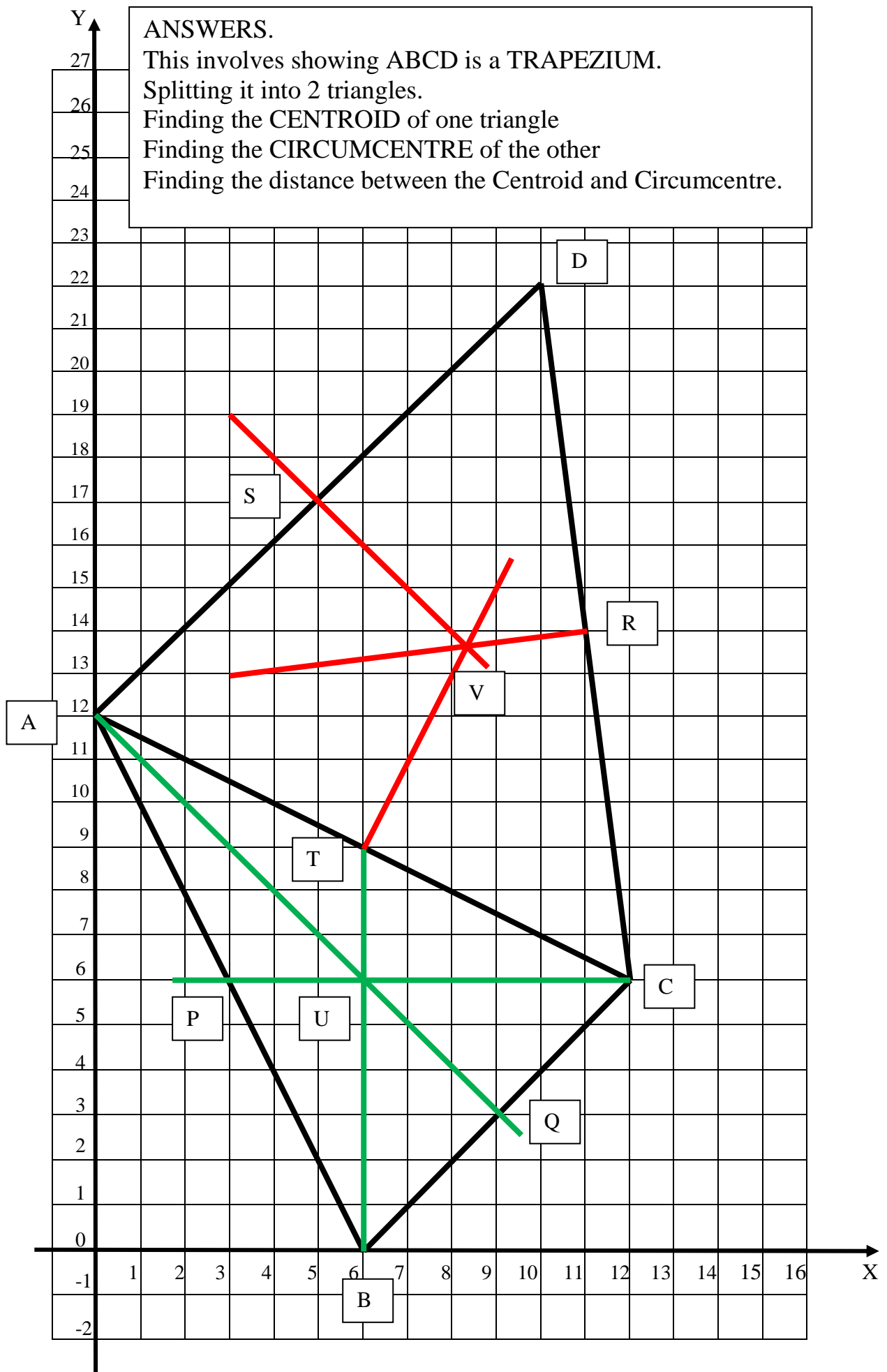
Find the equation of the **mediator** of AC in triangle ACD

Find the equation of the **mediator** of CD in triangle ACD

What is the name of the point V which is where the **mediators intersect**?

Calculate the coordinates of V.

6. Calculate the **distance UV**.



ANSWERS.

A quadrilateral ABCD has coordinates A(0, 12), B(6, 0), C(12, 6), D(10, 22).

1. Find the gradients of:

(i) $AB = -2$

(ii) $BC = 1$

(iii) $CD = -8$

(iv) $DA = 1$

What type of quadrilateral is ABCD? **TRAPEZIUM**

2. Find the lengths of:

(i) $AB = 13.4$

(ii) $BC = 8.49$

(iii) $CD = 16.1$

(iv) $DA = 14.1$

3. Find the coordinates of P, the **mid-point** of AB **(3, 6)**

Find the coordinates of Q, the **mid-point** of BC **(9, 3)**

Find the coordinates of R, the **mid-point** of CD **(11, 14)**

Find the coordinates of S, the **mid-point** of DA **(5, 17)**

Find the coordinates of T, the **mid-point** of the diagonal AC **(6, 9)**

4. Find the equation of the **median** from A to BC in triangle ABC

$$y = -x + 12$$

Find the equation of the **median** from B to AC in triangle ABC

$$x = 6$$

Find the equation of the **median** from C to AB in triangle ABC

$$y = 6$$

What is the name of the point U which is where the **medians intersect**?

CENTROID

Calculate the coordinates of U. **(6, 6)**

5. Find the equation of the **mediator** (perpendicular bisector) of AD in triangle ACD

$$y = -x + 22$$

Find the equation of the **mediator** of AC in triangle ACD

$$y = 2x - 3$$

Find the equation of the **mediator** of CD in triangle ACD

$$y = x/8 + 101/8 \text{ or } y = x/8 + 12.625$$

What is the name of the point V which is where the **mediators intersect**?

CIRCUMCENTRE

Calculate the coordinates of V. **(25/3, 41/3) or (8.33, 13.67)**

6. Calculate the **distance UV**. **$= 8.016 \approx 8.02$**