Math Tool: Coordinate Planes

**I. Reflection across the x-axis:**

Triangle ABC → A'B'C' (A′prime, B′prime, C′prime)

**Rule:**
1. Find coordinates of each point.
2. Change the coordinates from (x, y) to (x, -y)

- **Original Figure:**
  - A (2, 3)
  - B
g  - C

- **Reflected Figure:**
  - A′
  - B′
  - C′

- **Reflect Rectangle WXYZ across the x-axis:**

**II. Reflection across the y-axis:**

**Rule:**
1. Find coordinates of each point.
2. Change the coordinates from (x, y) to (-x, y)

- **Original Figure:**
  - E (2, 4)
  - F
g  - C

- **Reflected Figure:**
  - E′
  - F′
  - G′
  - C′
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e) Reflect across the y-axis.

Draw ΔA(-2,2) B(-5,2) C(-2,0).
then show a reflection across the x-axis.

f) Reflect across the x-axis.

draw rectangle ABCD with A(1,1) B(5,1) C(1,4) D(5,4).
Then reflect it across the y-axis. Then translate 5 units down.
Notes: Reflections

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I. Reflection across the x-axis:
Triangle ABC → A'B'C' (A', B', C')

Rule: 1) Find coordinates of each point.
2) Change the coordinates from (x, y) to (x, -y)

Original Figure → Reflected Figure:
A (2, 3) → (2, -3)
B (3, 6) → (3, -6)
C (5, 3) → (5, -3)

D) Reflect Rectangle WXYZ across the x-axis

II. Reflection across the y-axis:
Rule: 1) Find coordinates of each point
2) Change the coordinates from (x, y) to (-x, y)

Original Figure → Reflected Figure:
E (2, 4) → (2, -4)
F (2, 1) → (2, -1)
G (7, 3) → (7, -3)
H (5, 2) → (5, -2)
I (3, 5) → (3, -5)
J (0, -6) → (0, 6)
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e) Reflect across the y-axis. (x, y)

(x, -y)

Draw A A'(-2, 2) B(-5, 2) C(-2, 0) then show a reflection across the x-axis.

x' -y

(f) Reflect across the x-axis. A(2, 0) A'(2, 0)

B(6, 0) B'(6, 0)

C(4, 5) C'(4, 5)

Draw rectangle ABCD with A(1, 1) B(5, 1) C(5, 4) D(1, 4). Then reflect it across the y-axis. Then translate 5 units down.