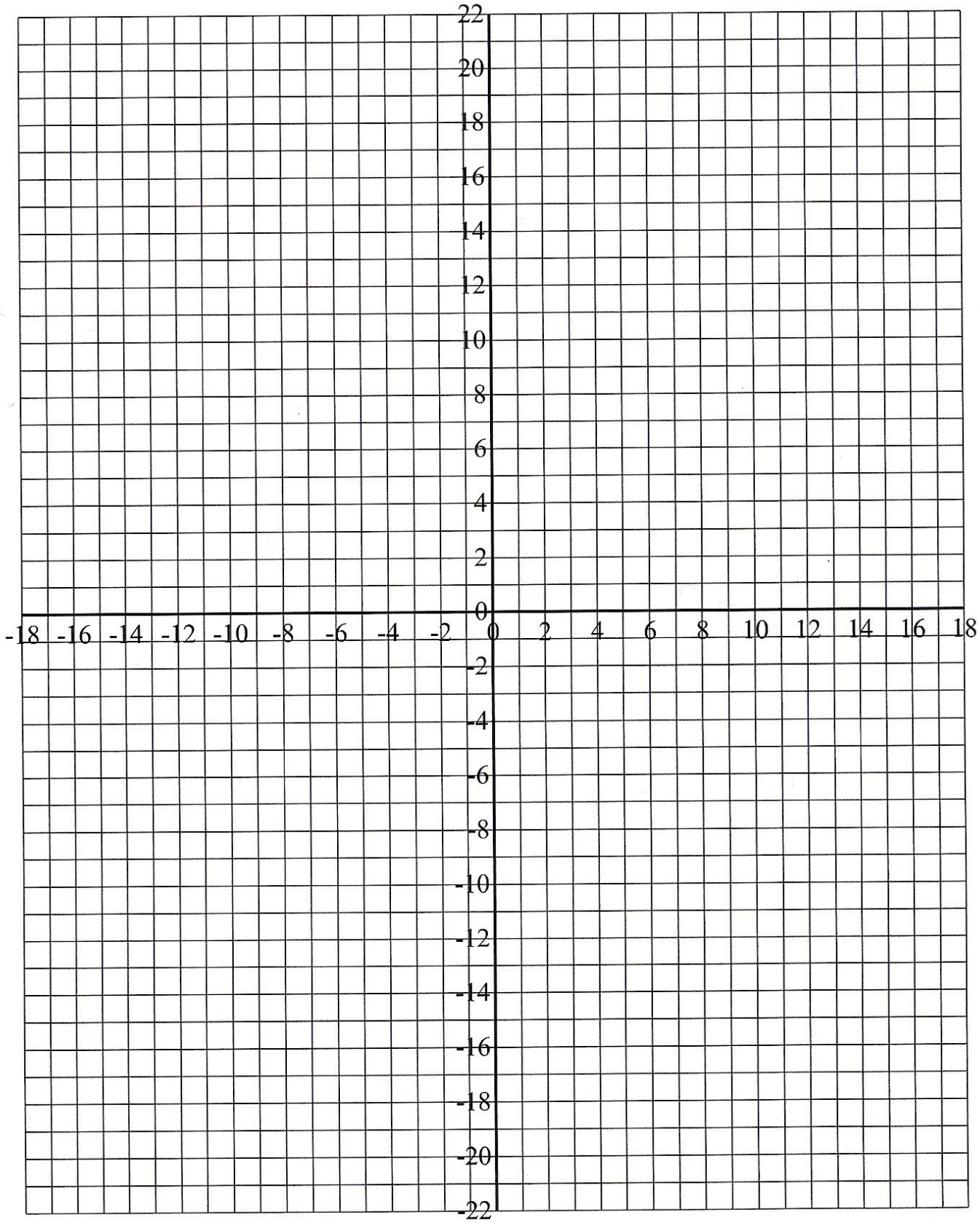
Reflecting Snowflakes

A snowflake begins to form when an extremely cold water droplet freezes onto a dust particle in the sky. This creates an ice crystal. As the crystal falls to the ground, water freezes around the crystal, building a snowflake with six arms. It is said that no two snowflakes look alike- each becomes slightly different as they grow and fall to the ground. But, even though they are unique, all snowflakes have something in common- each is an amazing example of mathematical reflections. Each quadrant of the snowflake reflects across the x and y axis showing us how mathematics are all around us and used by nature every day.

To complete your reflecting snowflake, start with the directions in column one, then move on to column two, three and then column four. **Remember**: <u>to reflect across the x axis, the x coordinate stays the same and the y becomes the opposite. To reflect across the y axis, the y coordinate stays the same and the x becomes the opposite.</u>

Column 1	**Column 2**	**Column 3**	**Column 4**
Start here: Plot each of these points on the coordinate plane. Connect each point to the previous point	**1st-** reflect each point from <u>column 1</u> across the <u>x axis</u> and write the new point below. **2nd-** graph each new ordered pair, connecting each to the previous point	**1st-** reflect each point from <u>column 2</u> across the <u>y axis</u> and write the new point below. **2nd-** graph each new ordered pair, connecting each to the previous point	**1st-** reflect each point from <u>column 3</u> across the <u>x axis</u> and write the new point below. **2nd-** graph each new ordered pair, connecting each to the previous point
(0, -16)			
(1, -16)			
(1, -10)			
(5, -14)			
(6, -13)			
(2, -9)			
(5, -6)			
(8, -8)			
(8, -15)			
(10, -15)			
(10, -10)			
(15, -12)			
(16, -10)			
(11, -8)			
(15, -5)			
(14, -3)			
(10, -7)			
(6, -4)			
(8, 0)			
What quadrant are all these coordinates in?	What quadrant are all these coordinates in?	What quadrant are all these coordinates in?	What quadrant are all these coordinates in?

1. How does an ordered pair change when you reflect across the x axis?
2. How does an ordered pair change when you reflect across the y-axis?
3. Are there any ordered pairs that do not change when you reflect them? Explain
4. Is it possible for an ordered pair to be in two quadrants at the same time? Explain


22
20
18
16
14
12
10
8
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4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-18 -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18