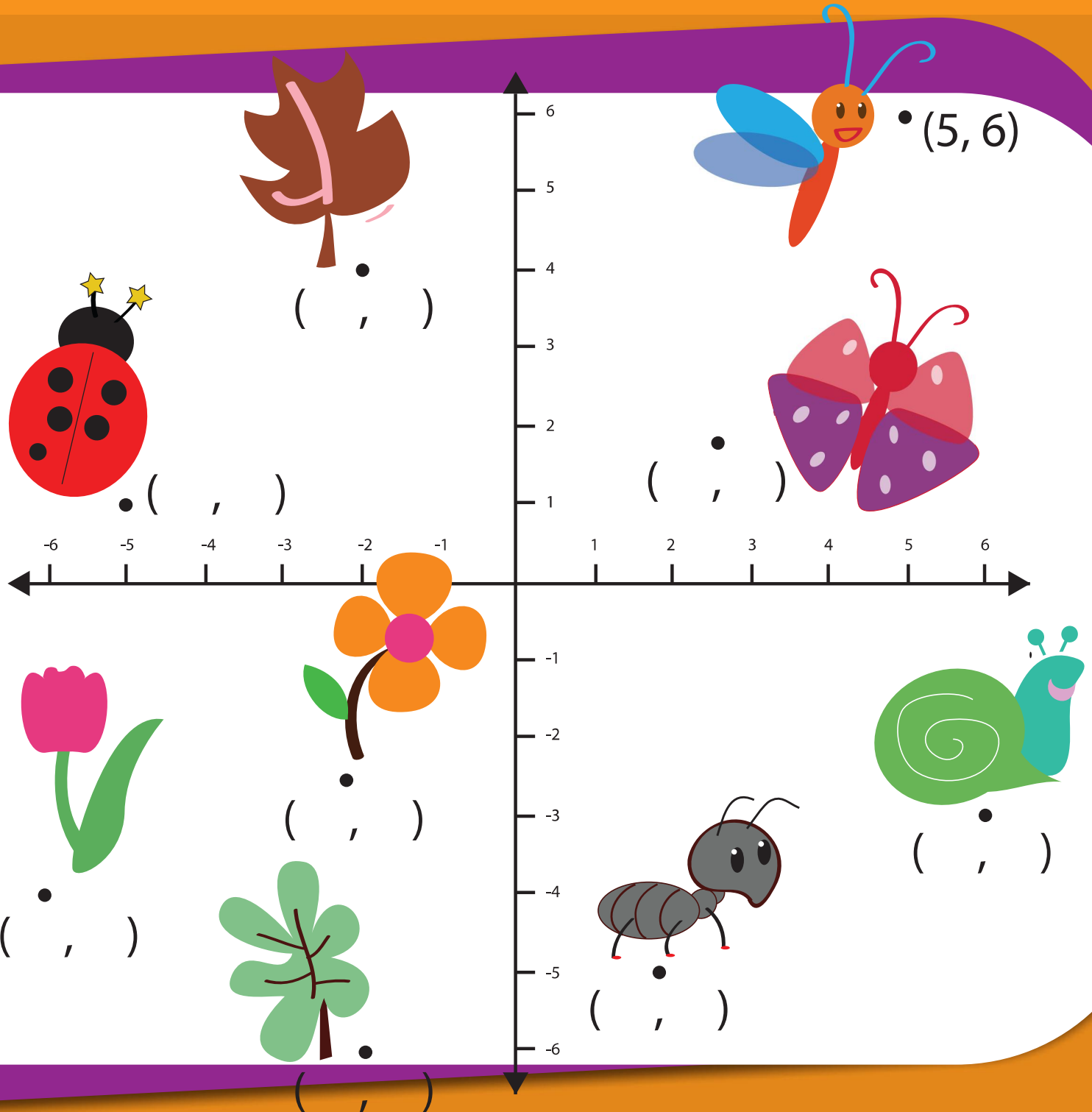


# Patterns, Pairs & Variables

5<sup>th</sup>  
Grade



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# NUMBER PATTERNS

Find out what number is added or subtracted to get the next number. Repeat the process to fill in the missing numbers. Write the pattern used on the blank lines to the right. (Hint: The patterns can be whole numbers OR fractions.)

Example:

5    10    15    20    25    30    35    40    45           +5

1.		4	7	10				21	<u>          </u>
2.	3		11	15		23			<u>          </u>
3.	5		11		17		23		<u>          </u>
4.		8		4		0		-4	<u>          </u>
5.	56		32		8		-16		<u>          </u>
6.	45		37		29	25	21		<u>          </u>
7.	$\frac{5}{2}$	4	$\frac{11}{2}$	7					<u>          </u>
8.		9		8	$\frac{15}{2}$			6	<u>          </u>
9.	11		37			76	89		<u>          </u>
10.	15			33		45		57	<u>          </u>
11.	$\frac{7}{2}$	6		11		16		21	<u>          </u>
12.	20				15		$\frac{50}{4}$	$\frac{45}{4}$	<u>          </u>
13.			57	41		9		-23	<u>          </u>
14.	-52		2		56	83			<u>          </u>
15.	$\frac{1}{5}$	1	$\frac{9}{5}$				5		<u>          </u>

# NUMBER PATTERNS

Find out what whole number OR fraction is multiplied or divided to get the next number. Repeat the process to fill in the missing numbers. Write down the pattern used on the blank lines to the right.

Example:

8	12	18	27	$\frac{81}{2}$	$\frac{243}{4}$	$\frac{729}{8}$	$\times\left(\frac{3}{2}\right)$
---	----	----	----	----------------	-----------------	-----------------	----------------------------------

1.	$\frac{1}{2}$	$\frac{3}{2}$	$\frac{9}{2}$			$\frac{243}{2}$		$\frac{2187}{2}$	
2.	5		20		80		320		_____
3.		1250	1000	800	640	512			_____
4.	1000	500		125		$\frac{125}{4}$			_____
5.		11	33	99		891		8019	_____
6.	7			56		224	448		_____
7.			18	27	$\frac{81}{2}$				_____
8.		2916		1296	864	576			_____
9.	$\frac{3}{2}$	3	6	12					_____
10.		14		56				896	_____
11.	81		9		1	$\frac{1}{3}$			_____
12.	1024		64		4		$\frac{1}{4}$		_____
13.	$\frac{1}{128}$	$\frac{1}{16}$		4		256		16384	_____
14.		2500		100		4		$\frac{4}{25}$	_____
15.	$\frac{2}{81}$		2		162	1458			_____

# NUMBER PATTERNS

Treasure-hunter Jack has received a secret message in a sequence of numbers. Decoded, it will tell him the location of the world's largest diamond, the Golden Jubilee. The message is encoded in a "letter number" cipher. This is when letters are replaced as numbers. However only the MISSING NUMBERS will reveal the true location. Find out what these numbers are!

(Hint: The numbers follow a pattern. You will have to subtract, divide, add or multiply by a whole number or fraction to find the missing numbers.)

Example:

(+5) 5    10    15    20    **25**    Then the letter is Y

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26

1.        5        10                40        80

2.        29        22        15               

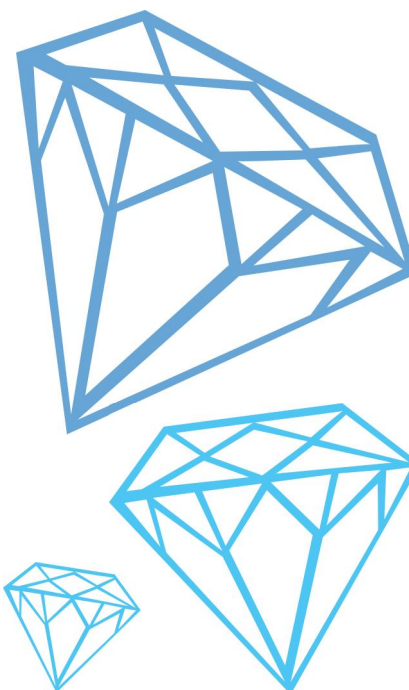
3.         $\frac{27}{2}$                 6        4         $\frac{8}{3}$

4.        -60        -36        -12                36

5.        81        27        9        3       

6.        3024        504        84                 $\frac{7}{3}$

7.        20        16        12        8       

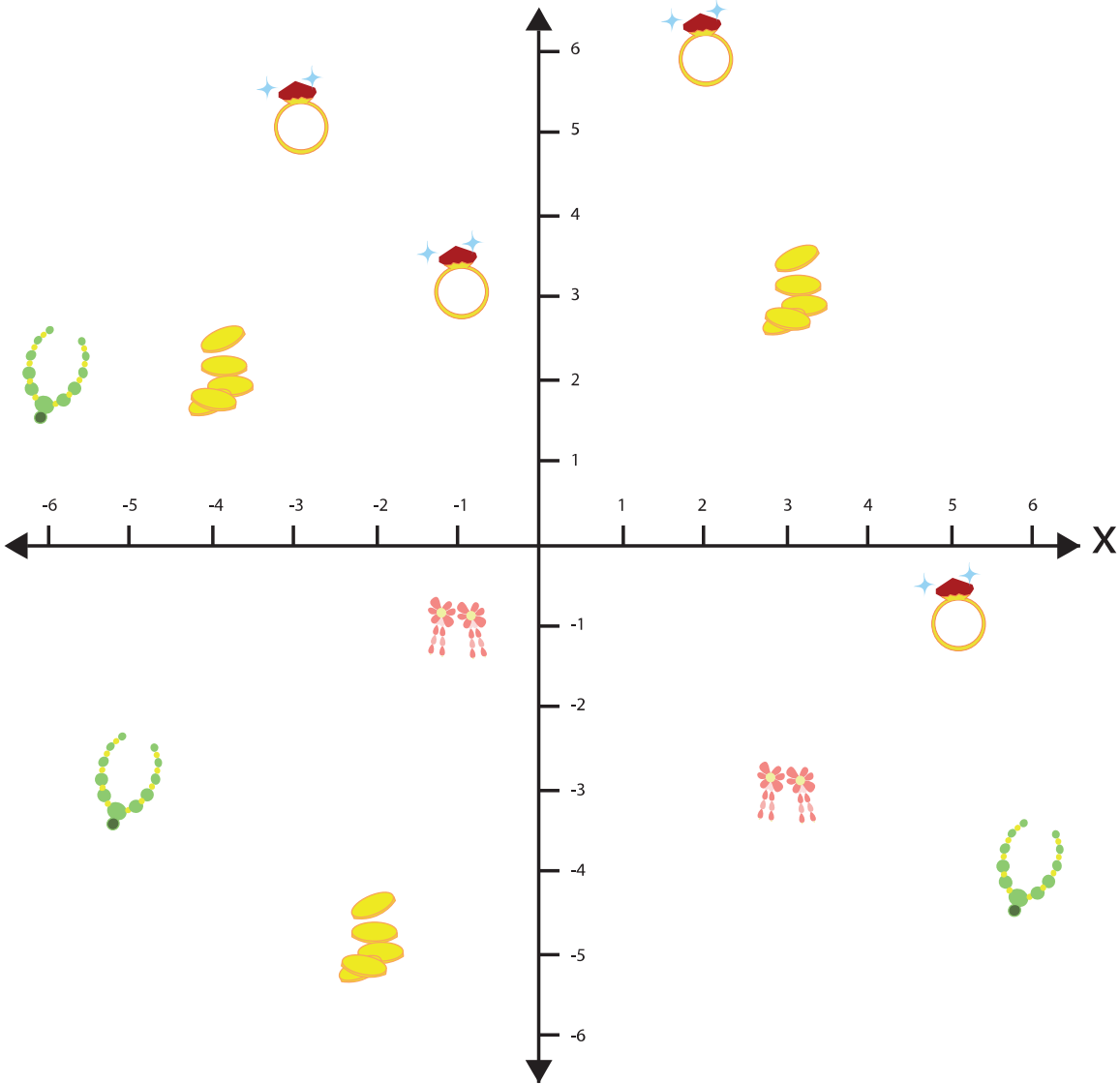



Where is the location of the Golden Jubilee Diamond?

- \_\_\_\_\_
- 1        2a        2b        3        4        5        6        7

# Coordinates Treasure Hunt!

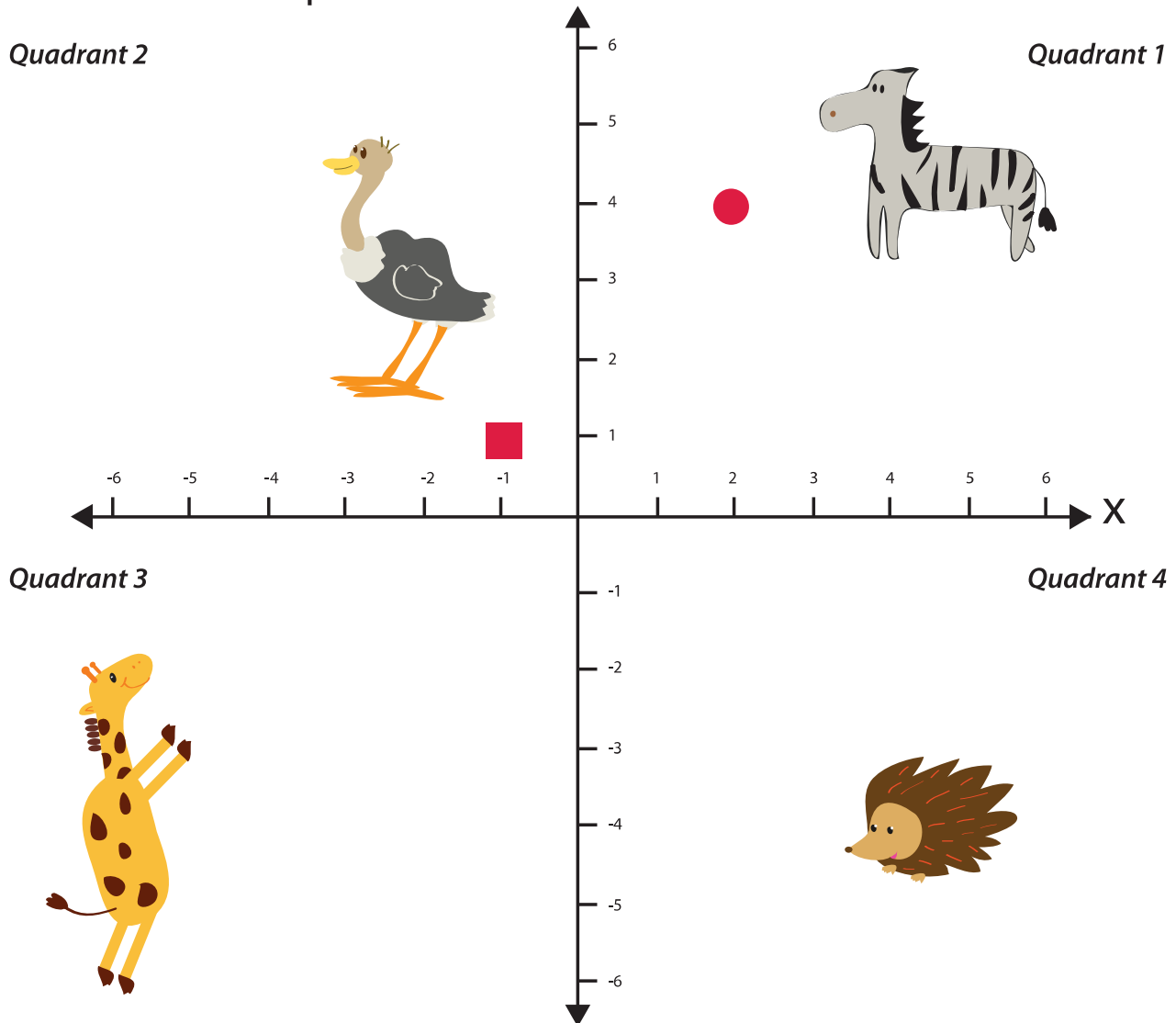
Help the treasure hunter by looking at the coordinate plane below and answering the questions.



1. What treasure is located at (5, -1)?
2. What treasure is located at (-2, -5)?
3. What treasure is located at (6, -4)?
4. Write the coordinates of the earrings below. 
5. Which quadrant has the most treasure in it?

# Name the Quadrant

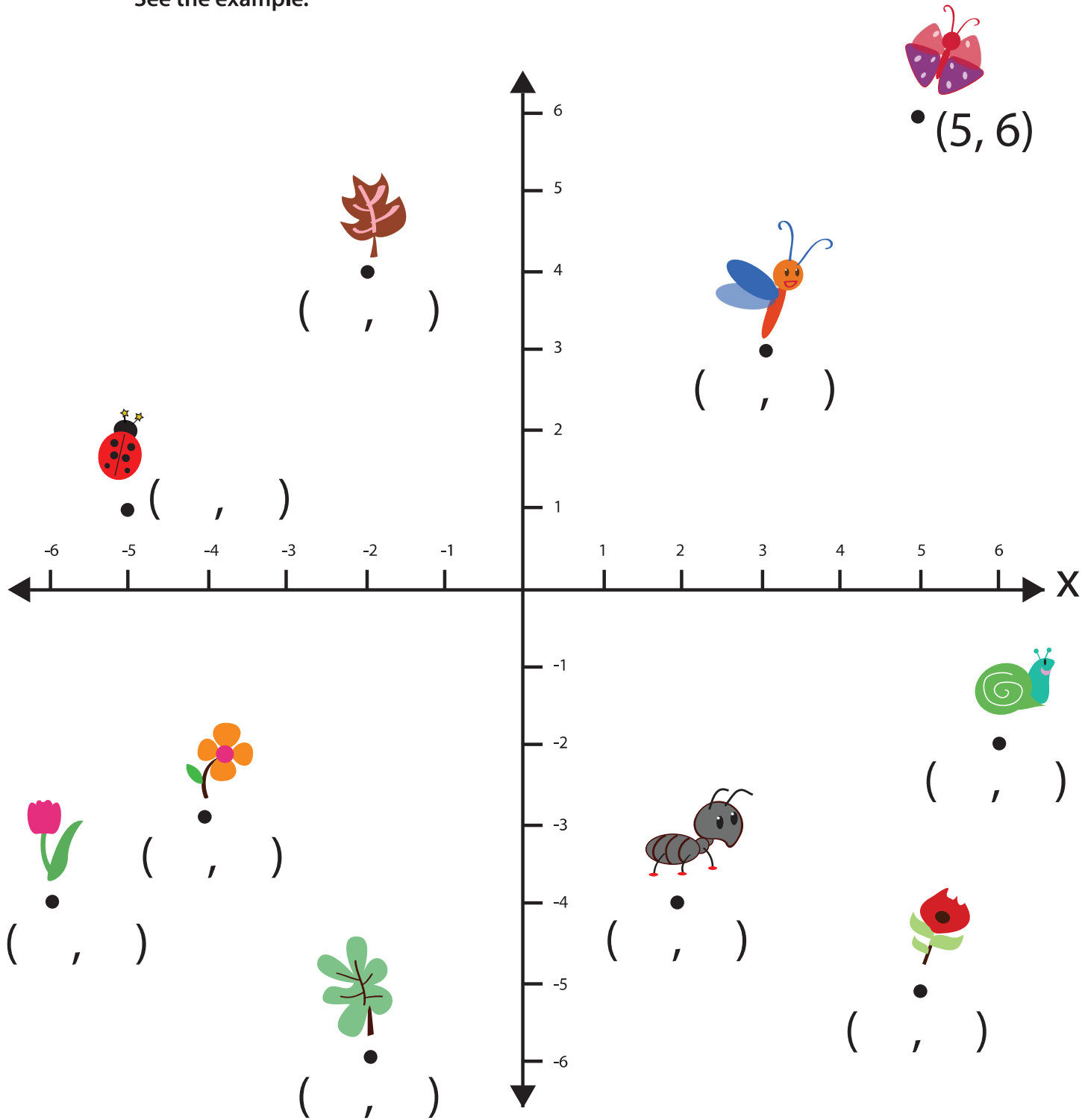
The coordinate plane is divided into four quadrants. Look at the coordinate plane below and answer the questions.



1. Which quadrant is the giraffe in?
2. Which quadrant is the zebra in?
3. Which quadrant is the ostrich in?
4. Draw a triangle and a rectangle in quadrant four.
5. Draw a circle and a square in quadrant three.
6. The coordinates of the square in quadrant 2 are  $(-1, 1)$ .  
What are the coordinates of the circle in quadrant one?

# Write the Coordinates

Look at the position of each object below, and write the coordinates in the parentheses.  
See the example.



Which quadrant does not contain an insect?