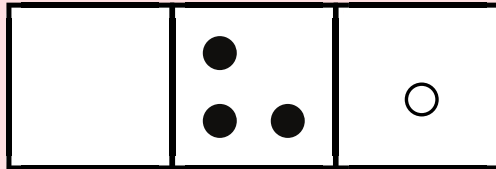




# Match the pair

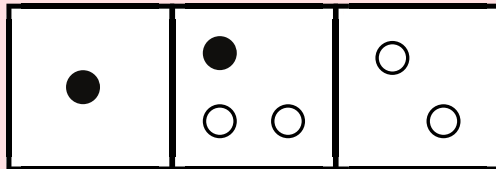
Match the Exploding Dots machine to their equivalent numeral representation.

$1 \leftarrow 3$



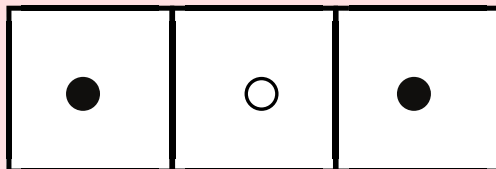
3

$1 \leftarrow 4$



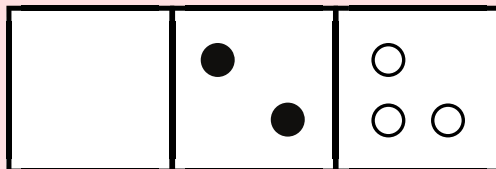
15

$1 \leftarrow 2$



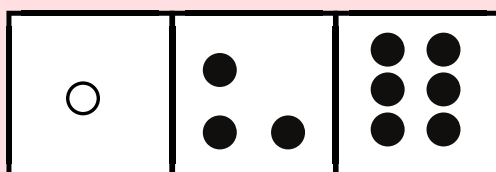
8

$1 \leftarrow 9$



-12

$1 \leftarrow 6$



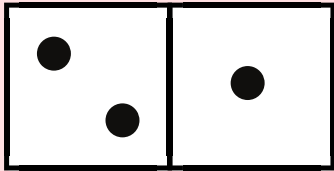
10



# Guess the machine



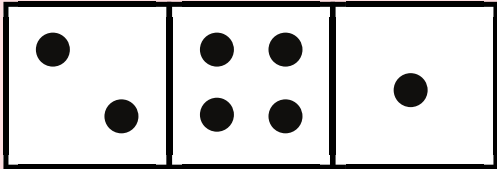
What number systems do each of these Exploding Dots machine represent? Ex:  $1 \leftarrow 2$ ,  $1 \leftarrow 3$ , etc.



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13

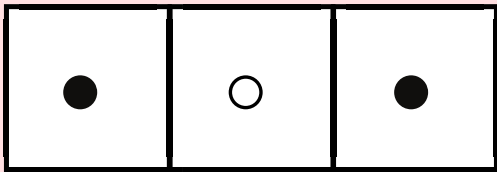
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17

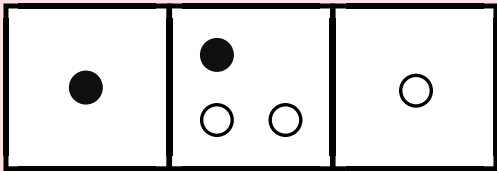
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31

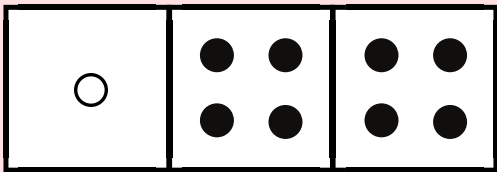
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89

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=

-1

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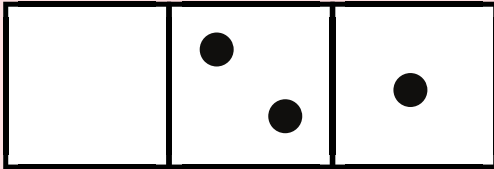
# Circle the evens



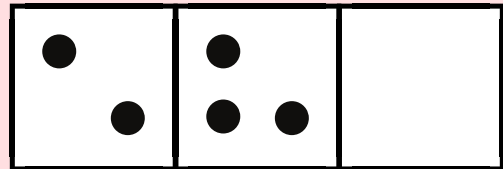
Circle all the pictures that represent an even number.

What's a quick way to detect even numbers ?

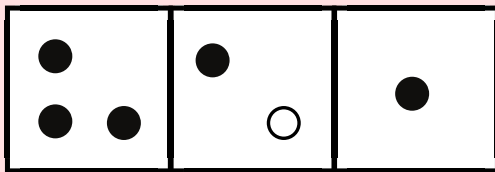
1 ← 8



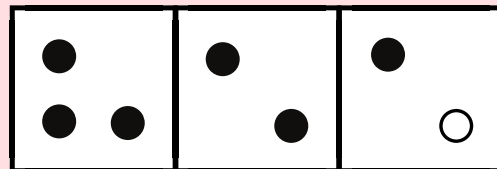
1 ← 4



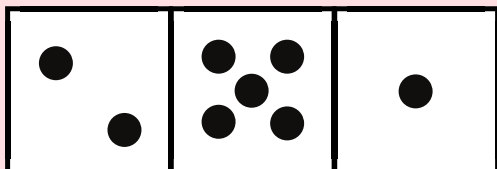
1 ← 2



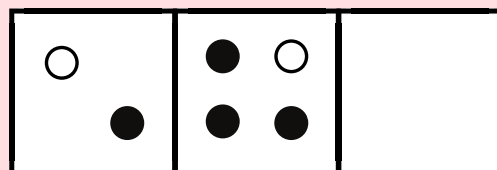
1 ← 6



1 ← 10



1 ← 12





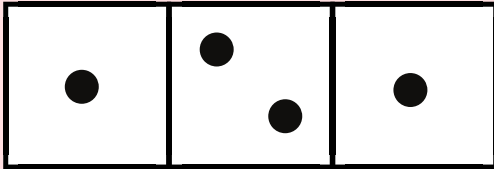
# Circle the odds



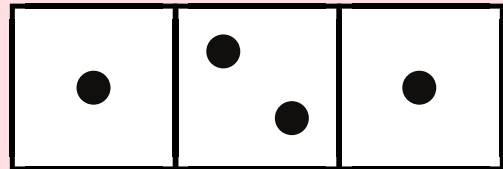
Circle all the pictures that represent an odd number.

What's a quick way to detect odd numbers ?

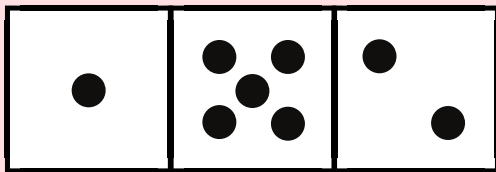
1 ← 3



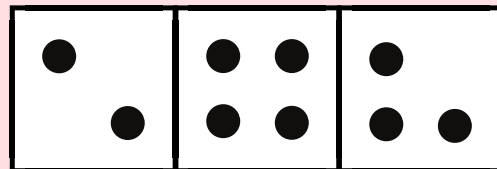
1 ← 5



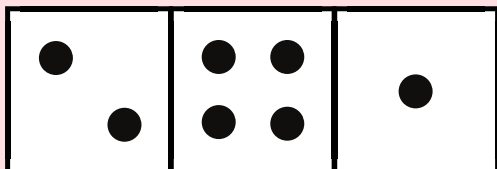
1 ← 7



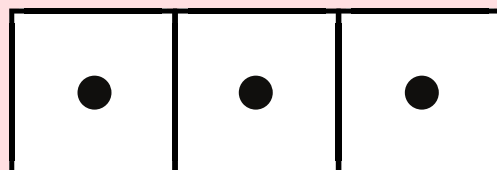
1 ← 9



1 ← 11



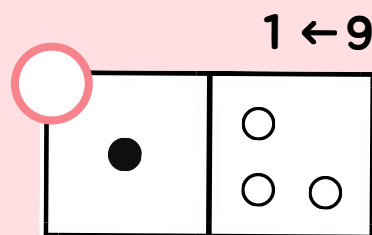
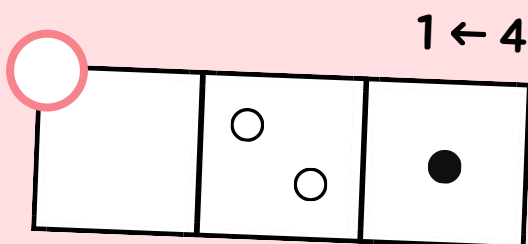
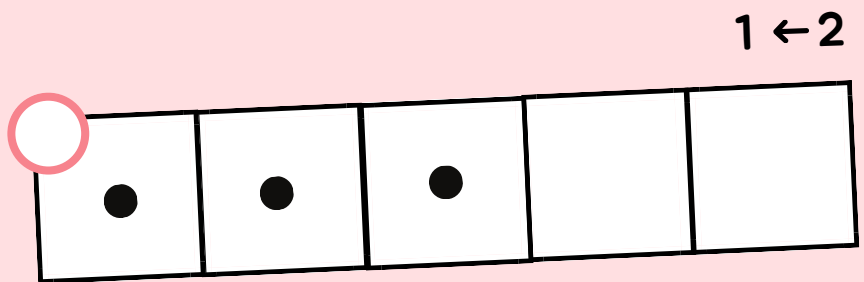
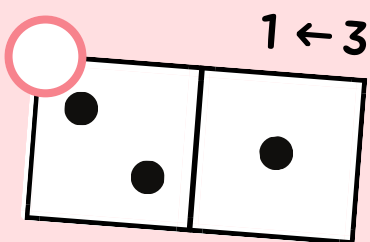
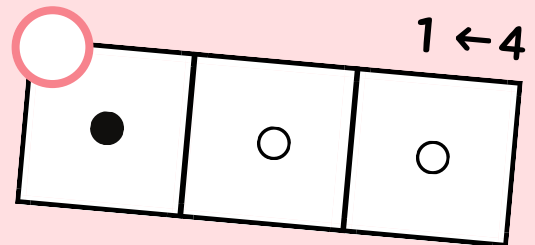
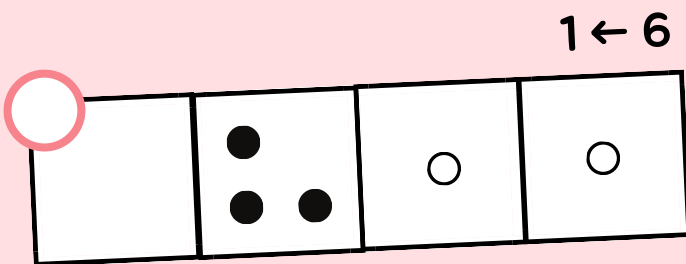
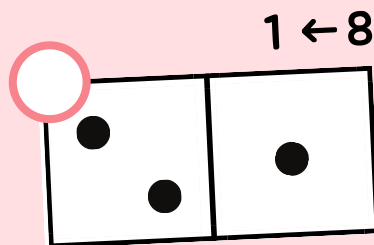
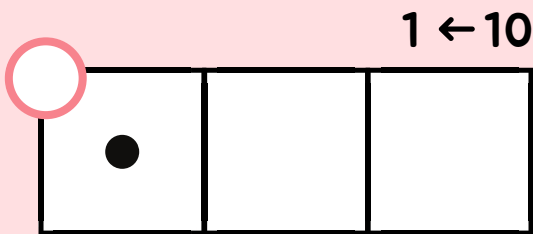
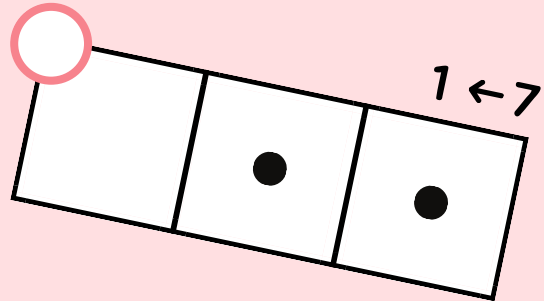
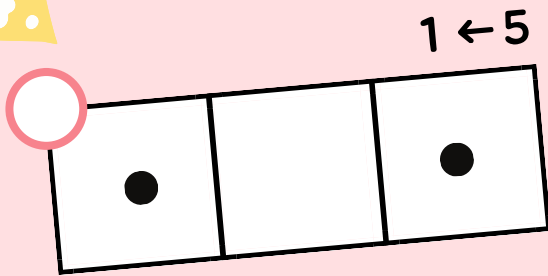
1 ← 13





# Arrange in Ascending order

Arrange these Exploding Dots machine in the ascending order of the values they represent.





# Replace the question mark



What does the question mark represent in each of the equations below?

$1 \leftarrow 3$                        $1 \leftarrow ?$

	• •	•	+	•	○	=	10
--	--------	---	---	---	---	---	----

$1 \leftarrow 4$                        $1 \leftarrow 5$

	?	○	-	○	• •	=	12
--	---	---	---	---	--------	---	----

$1 \leftarrow 8$                        $1 \leftarrow 2$

	• •	• • •	+	•	•	=	?
--	--------	-------------	---	---	---	---	---

$1 \leftarrow 2$                        $1 \leftarrow 2$

	•	•	×	•	•	=	?
--	---	---	---	---	---	---	---

$1 \leftarrow 3$                        $1 \leftarrow 2$

• •	○	?	○	○	•	=	10
--------	---	---	---	---	---	---	----



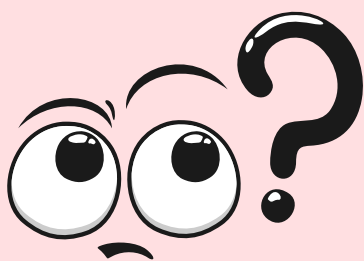
# What comes before?



Replace the question marks with appropriate dots or antidots to form an arithmetic sequence.



$1 \leftarrow 6$	$1 \leftarrow 6$	$1 \leftarrow 6$	$1 \leftarrow 6$												
<table border="1"><tr><td>?</td><td>?</td><td>?</td></tr></table>	?	?	?	<table border="1"><tr><td></td><td>•</td><td>○</td></tr></table>		•	○	<table border="1"><tr><td></td><td>•</td><td></td></tr></table>		•		<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•
?	?	?													
	•	○													
	•														
	•	•													
$1 \leftarrow 8$	$1 \leftarrow 8$	$1 \leftarrow 8$	$1 \leftarrow 8$												
<table border="1"><tr><td>?</td><td>?</td><td>?</td></tr></table>	?	?	?	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•	<table border="1"><tr><td></td><td>•</td><td>○</td></tr></table>		•	○	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•
?	?	?													
	•	•													
	•	○													
	•	•													
$1 \leftarrow 10$	$1 \leftarrow 10$	$1 \leftarrow 10$	$1 \leftarrow 10$												
<table border="1"><tr><td>?</td><td>?</td><td>?</td></tr></table>	?	?	?	<table border="1"><tr><td></td><td>•</td><td>○</td></tr></table>		•	○	<table border="1"><tr><td></td><td>•</td><td>○</td></tr></table>		•	○	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•
?	?	?													
	•	○													
	•	○													
	•	•													
$1 \leftarrow 2$	$1 \leftarrow 2$	$1 \leftarrow 2$	$1 \leftarrow 2$												
<table border="1"><tr><td>?</td><td>?</td><td>?</td></tr></table>	?	?	?	<table border="1"><tr><td></td><td>•</td><td></td></tr></table>		•		<table border="1"><tr><td>•</td><td></td><td>○</td></tr></table>	•		○	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•
?	?	?													
	•														
•		○													
	•	•													
$1 \leftarrow 5$	$1 \leftarrow 5$	$1 \leftarrow 5$	$1 \leftarrow 5$												
<table border="1"><tr><td>?</td><td>?</td><td>?</td></tr></table>	?	?	?	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•	<table border="1"><tr><td></td><td>•</td><td>•</td></tr></table>		•	•	<table border="1"><tr><td></td><td>•</td><td>○</td></tr></table>		•	○
?	?	?													
	•	•													
	•	•													
	•	○													



# Find the pattern representing 6

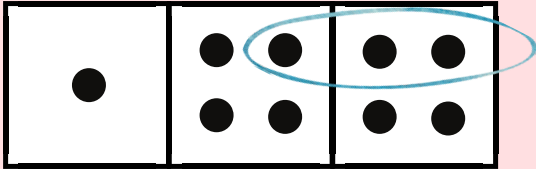


Circle the pattern of dots and antidots that represent six in the respective base number system. The number of patterns that can be found are specified as a hint



HINT

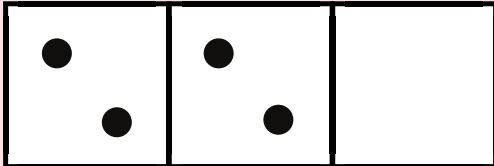
$1 \leftarrow 4$



3

---

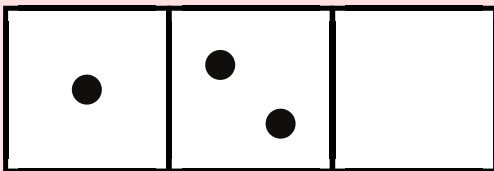
$1 \leftarrow 2$



2

---

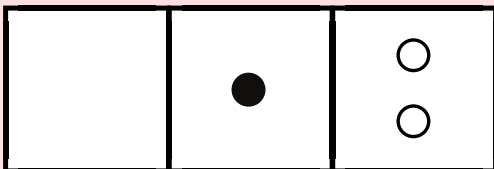
$1 \leftarrow 6$



3

---

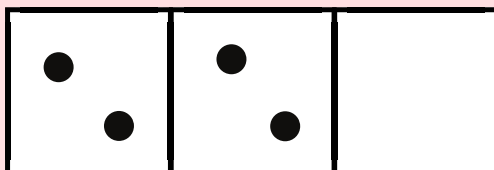
$1 \leftarrow 8$



1

---

$1 \leftarrow 3$



2

---





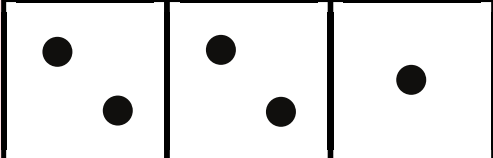


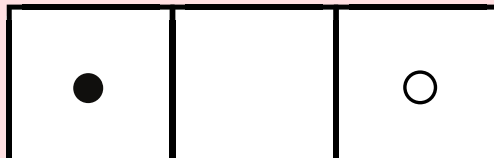

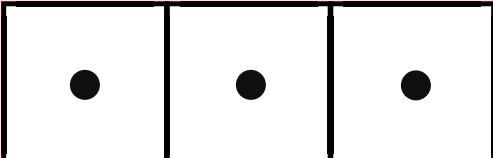


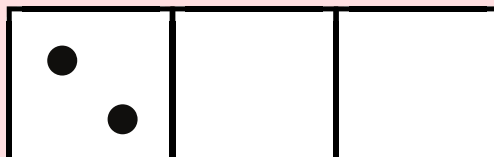


# Make the equation true

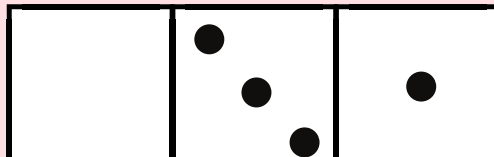




By adding just one dot or one antidot in either the LHS or the RHS.

$$1 \leftarrow 3 \quad = \quad 1 \leftarrow 5$$


$$1 \leftarrow 2 \quad = \quad 1 \leftarrow 3$$


$$1 \leftarrow 6 \quad = \quad 1 \leftarrow 4$$


$$1 \leftarrow 5 \quad = \quad 1 \leftarrow 8$$


$$1 \leftarrow 10 \quad = \quad 1 \leftarrow 12$$
