



# Extra Questions

The Philomath Club



# Introduction



**1, 2, 4, 8, 16, 32, 64...**


$$1 \times 2 = 2$$


$$2 \times 2 = 4$$

$$4 \times 2 = 8$$

$$8 \times 2 = 16$$

$$16 \times 2 = 32$$

$$32 \times 2 = 64$$

$$64 \times 2 = 128$$




**3, 8, 13, 18, 23, 28, ...**


$$3 + 5 = 8$$

$$8 + 5 = 13$$

$$13 + 5 = 18$$

$$18 + 5 = 23$$

$$23 + 5 = 28$$

$$28 + 5 = 33$$

$$33 + 5 = 38$$




**71, 62, 53, 44, ...**  
**What is the next number  
in the above pattern?**


$$71 - 9 = 62$$

$$62 - 9 = 53$$

$$53 - 9 = 44$$

$$44 - 9 = 35$$






**What is the missing  
value?**

**2, 5, 8, 11, 14, ?**


$$2 + 3 = 5$$

$$5 + 3 = 8$$

$$8 + 3 = 14$$

$$14 + 3 = 17$$




**11, 17, 23, ? , 35, 41**


$$11 + 6 = 17$$

$$17 + 6 = 23$$

$$\text{So } 23 + 6 = 29$$

$$29 + 6 = 35$$

$$35 + 6 = 41$$




**63, 55, 47, ? , 31, 23**

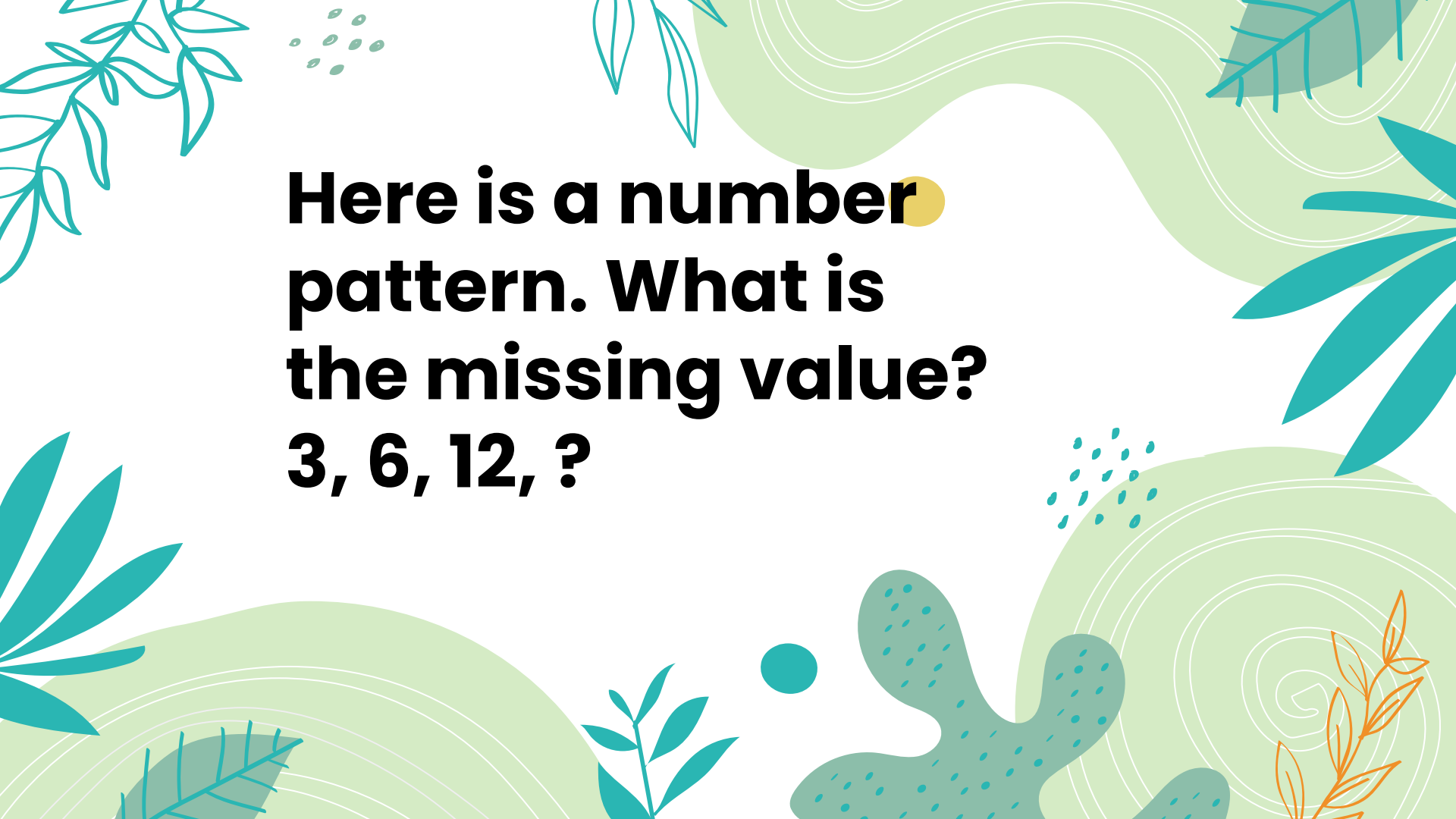

$$63 - 8 = 55$$

$$55 - 8 = 47$$

$$47 - 8 = 39$$

$$39 - 8 = 31$$

$$31 - 8 = 23$$

**Here is a number  
pattern. What is  
the missing value?  
3, 6, 12, ?**


$$3 \times 2 = 6$$

$$6 \times 2 = 12$$

$$12 \times 2 = 24$$

$$24 \times 2 = 48$$


$$48 \times 2 = 96$$






**3, 10, 17, 24, 31, 38,**

**...**


$$3 + 7 = 10$$

$$10 + 7 = 17$$

$$17 + 7 = 24$$

$$24 + 7 = 31$$

$$31 + 7 = 38$$

$$38 + 7 = 45$$

$$45 + 7 = 52$$




**The first cube number is 1 cubed =  $1^3 = 1$   
 $\times 1 \times 1 = 1$**

**What is the tenth cube number?**

$$10 \times 10 \times 10 = 1000$$





**Here is a number pattern.  
What is the missing number?**

**2, 8, 32, ? , 512, 2048**

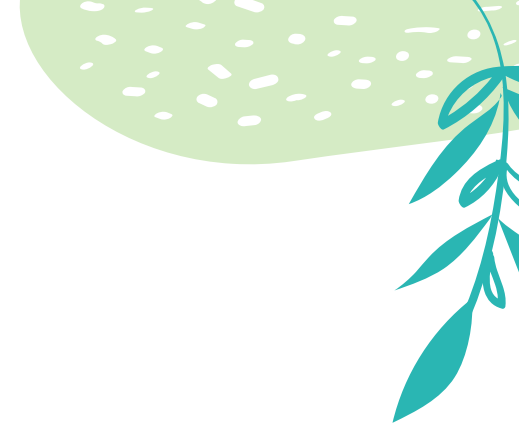
$$2 \times 4 = 8$$

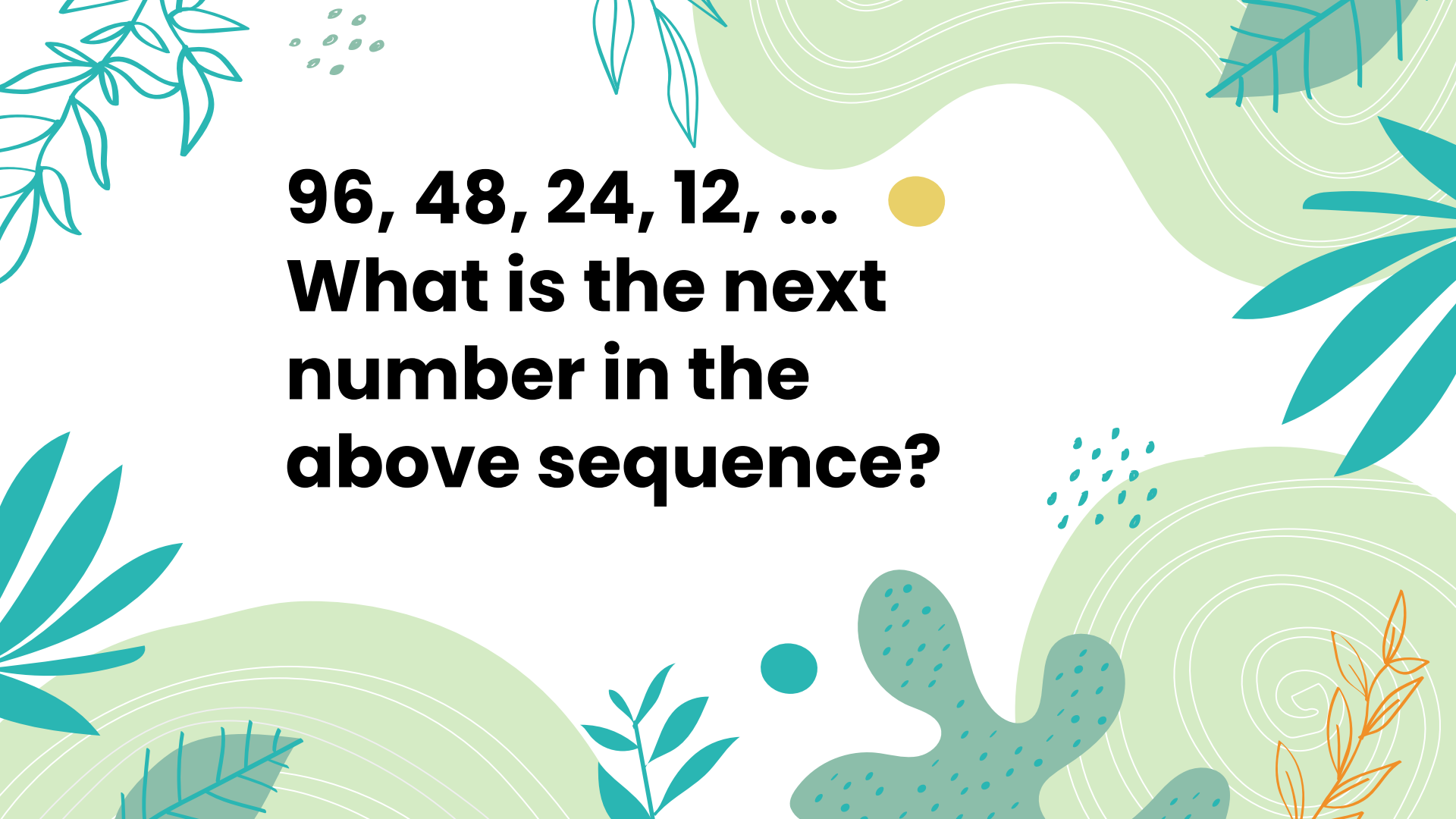
$$8 \times 4 = 32$$

$$32 \times 4 = 128$$

$$128 \times 4 = 512$$


$$512 \times 8 = 4096$$





**96, 48, 24, 12, ...** ●

**What is the next  
number in the  
above sequence?**


$$98 / 2 = 48$$

$$48 / 2 = 24$$

$$24 / 2 = 12$$

$$12 / 2 = 6$$

$$6 / 2 = 3$$
