

**Week 14**

**Wednesday 24th June 2020**

**Year 6 Cube Numbers**

Please watch the brief presentation on **square**, **cube** and **triangular numbers** to help you complete the challenge at the end: [https://www.youtube.com/watch?v=yezeRz4J\\_e0](https://www.youtube.com/watch?v=yezeRz4J_e0)

## Cube Numbers

1a. Circle the odd one out.

$$3^3 + 23$$

$$4^3 - 14$$

$$2^3 + 32$$

Explain your reasoning.



## Cube Numbers

1b. Circle the odd one out.

$$5^3 - 25$$

$$1^3 + 90$$

$$4^3 + 36$$

Explain your reasoning.



2a. Mo says,



The number  
125 is a cube  
number.

Is he correct? Prove it.



2b. Bella says,



The number  
27 is a cube  
number.

Is she correct? Prove it.



3a. Solve the word problem below.

I am thinking of a number.

If I cube my number, then add  
7, I get another cube number.

What number am I thinking of?



3b. Solve the word problem below.

I am thinking of a number.

If I cube my number, then take  
away 37, I get another cube  
number.

What number am I thinking of?



## Cube Numbers

4a. Circle the odd one out.

$$7^3 + 157$$

$$10^3 - 350$$

$$9^3 - 229$$

Explain your reasoning.



## Cube Numbers

4b. Circle the odd one out.

$$11^3 + 210$$

$$9^3 - 384$$

$$6^3 + 129$$

Explain your reasoning.



5a. Ivan says,



The number  
1,728 is a  
cube number.

Is he correct? Prove it.



5b. Kayleigh says,



The number  
733 is a cube  
number.

Is she correct? Prove it.



6a. Solve the word problem below.

I am thinking of a number.

If I cube my number, then add  
271, I get another cube  
number.

What number am I thinking of?



6b. Solve the word problem below.

I am thinking of a number.

If I cube my number, then take  
away 169, I get another cube  
number.

What number am I thinking of?



## Cube Numbers

7a. Circle the odd one out.

$$11^3 - 3^2$$

$$6^3 - 12^2$$

$$2^3 + 8^2$$

Explain your reasoning.



## Cube Numbers

7b. Circle the odd one out.

$$10^3 + 712$$

$$12^3 - 4^2$$

$$9^3 + 9^2$$

Explain your reasoning.



8a. Danny says,



The answer to  
 $12^3 - 12^2$  is a  
cube number.

Is he correct? Prove it.



8b. Kiran says,



The answer to  
 $8^3 + 11^2$  is a  
cube number.

Is she correct? Prove it.



9a. Solve the word problem below.

I am thinking of a number.

If I cube my number, then add  
the square number, I get the  
answer 810.

What number am I thinking of?



9b. Solve the word problem below.

I am thinking of a number.

If I cube my number, then take  
away the square number, I get  
the answer 1,210.

What number am I thinking of?



## Challenge

# Square, cube and triangle numbers

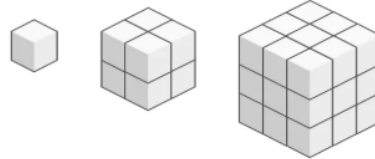
List the first few square numbers:

1, 4, 9, ...



List the first few cube numbers.

1, 8, 27, ...



List the first few triangle numbers:

1, 3, 6, ...



What would be the fifth cube? \_\_\_\_\_

What would be the fifth triangle? \_\_\_\_\_

Find two triangles that are also square numbers.

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