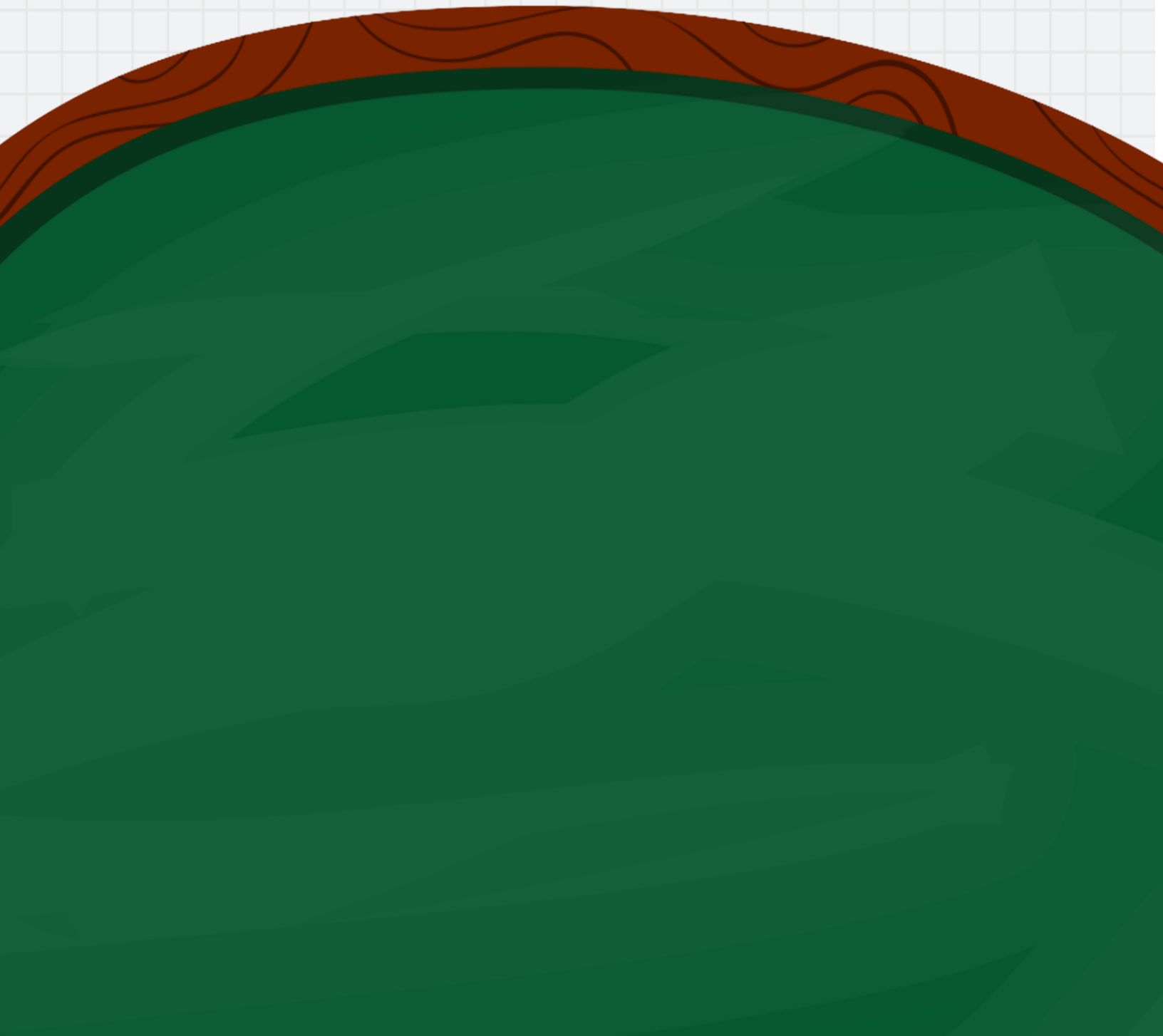




schoolio

GRADE 7 MATH - NUMBERS





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Lesson 1: Powers

Discussion:

You learned a long time ago how to calculate multiplication expressions like 4×4 . What is the answer? (16) Now, we are going to learn how to shorten these expressions, so that we don't have to write out long lines of multiplication.

For example, 4×4 can be written as 4^2 . Four to the Power of Two.

This is called using an exponent. When you are multiplying the same factor again and again, you are going to use a power.

Powers

Power – a product of equal factors

Expanded Form:

$$2 \times 2 \times 2 \times 2$$

$$2^4$$

Exponent (in a power) – the number of times the base occurs as a factor
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Base (in a power) – the factor repeated in a power

Practice finding the value of a power. For example, $2^2 = 4$. Ask – what is the base of this power? (2) What is the exponent? (2). $2^2 = 2$ (the factor) multiplied by itself two times (the exponent)

5^3 , 4^4 , 2^4 (practice these with your child before releasing them to complete the activity). For example, $5^3 = 5$ multiplied by itself three times = $5 \times 5 \times 5$.

Activity:

Complete Activity 1.1 – Understanding Powers and Bases

Activity 1.1 – Understanding Powers and Bases

Complete this table.

Product	Power	Base	Exponent	Value
$3 \times 3 \times 3 \times 3$				
$4 \times 4 \times 4 \times 4$				
	6^2			
	2^6			
		4	3	
		1	3	
		6	3	

Find the values of each power.

1. $10^5 =$

2. $3^4 =$

3. $5^7 =$

4. $9^3 =$

5. 10^5

$=$

6. 6^4

$=$ 7. 2^7

$=$

8. $8^5 =$

Compare these powers. Which has the greater value? Use an inequality sign.

1. 10^5 _____ 10^4

2. 3^4 _____ 3^2

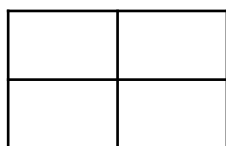
3. 5^7 _____ 5^5

4. 8^3 _____ 7^4

Lesson 2 – Squares and Square Roots

Discussion:

Now that you've learned about exponents, you are going to find this lesson really easy! We are going to use those exponents to calculate the square of a number. Do you remember how you calculated area? ($L \times W$) When we calculated area and it was a square, we were calculating something that was the same on both sides, right? This means for one side that was 5, the other side was five. Below, we have a square. It's 2×2 . If we found the area what would it be? (4). Right! So, when we find the square of a number, we are just multiplying the number by itself. For example, $2 \times 2 = 4$. We can also write that as 2^2 .



Practice finding the squares of numbers with your child a few times. Start with 5^2 . Have your child draw what this square would look like, and verify that there are in fact 25 squares on 5^2 .

Try this with 4^2 (16).

Try this with 6^2 (36).

Square Roots:

The square root of a number is really just the number that can be made by multiplying a whole number by itself. Ask your child if they would be able to find the length of one of the sides if you told them the number was 25. Give them the hint – what number multiplied by itself would make 25 (5). The below video is excellent for this introduction. https://www.youtube.com/watch?v=B-Sfvry_h3Q

Activity:

Complete Activity 2.1 – Understanding Square Numbers (Day 1)

Complete Activity 2.2 Continuing Square Numbers (Day 2)

Activity 2.1 – Understanding Square Numbers

What are the values for these square numbers?

Number	Value
3^2	
4^2	
5^2	
7^2	
9^2	
12^2	

What are the missing values for these square numbers?

Number	Value
30^2	9_0
15^2	2_
35^2	12_
10^2	_0
49^2	2__
13^2	1__

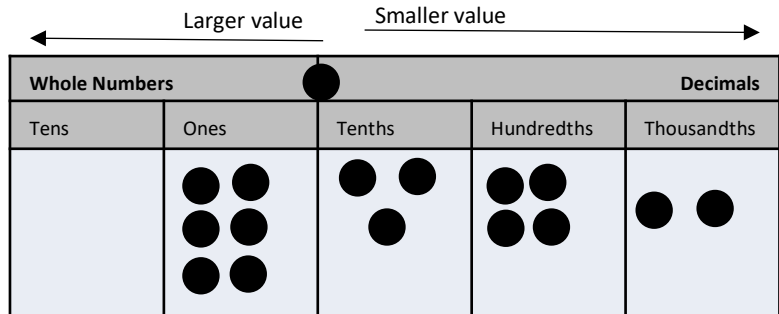
Compare these powers. Which has the greatest value?

1. $\sqrt{196}$
2. $\sqrt{256}$
3. $\sqrt{784}$
4. $\sqrt{289}$

Lesson 7 – Rounding Decimals

Discussion:

You covered decimals previously, so this will act like a review. This is the decimal place value chart. (Please show your child). Review how to read a decimal.



Place Value of Decimal Numbers

Reading decimals

Read the number before the decimal as you normally would. Say 'six'. Then say the decimal point as 'and'. Read the number after the decimal as a number 'three hundred forty two' Say the place value spot your number is in 'thousandths'. Six **and** three hundred forty two thousandths.

Practice reading these numbers and then decide what tenth they should be rounded to.

HUNDREDS	TENS	ONES		TENTHS	HUNDREDTHS	THOUSANDTHS
1	1	3	.	6	3	

One hundred thirteen **and** six three hundredths
It is closest to one hundred fourteen **and** 6 tenths

HUNDREDS	TENS	ONES		TENTHS	HUNDREDTHS	THOUSANDTHS
	1	2	.	5	2	

Twelve **and** fifty two thousandths
It is closest to 12 **and** 5 tenths

HUNDREDS	TENS	ONES		TENTHS	HUNDREDTHS	THOUSANDTHS
		3	.	2	3	5

Three **and** two hundred thirty five thousandths
It is closest to 3 **and** 2 tenths

HUNDREDS	TENS	ONES		TENTHS	HUNDREDTHS	THOUSANDTHS
	1	2	.	5	7	

Twelve **and** fifty seven thousandths
It is closest to 12 **and** 6 tenths

Activity:

Rounding Decimals 7.1

Activity 7.1 – Rounding Decimals

Complete this table.

Decimal	Rounded to the Nearest Tenth	Rounded to the Nearest Hundredth	Rounded to the Nearest Whole
3.214			
4.251			
9.781			
5.109			
6.213			
7.256			
8.239			
6.118			
9.999			
2.139			