Evaluating Expressions with Exponents

DMR QUIZ TODAY

Agenda Thursdday 2/25/2021

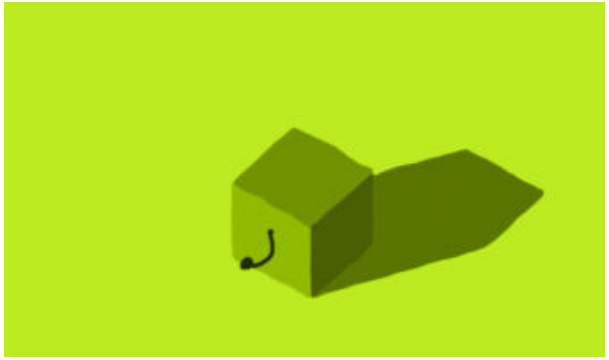
1. DMR
2. Good Things/ Morning Announcements
3. Blooket
4. Expressions & Exponents
5. Exit Ticket

Let’s find the value of expressions with exponents.

Today's Goals

- ❏ I know how to evaluate expressions that have both an exponent and addition or subtraction.
- ❏ I know how to evaluate expressions that have both an exponent and multiplication or division.

Revisiting the Cube



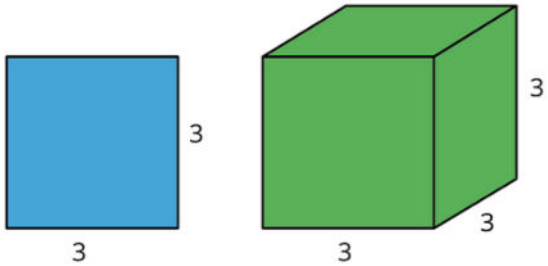
Warm Up 14.1

Complete as much of the table as you can.

– – –

	side length of the square	area of the square	volume of the cube	surface area of the cube
as a number	3			
as an expression using an exponent	3			

Based on the given information, what other measurements of the square and cube could we find?



Let's Talk About It

	side length of the square	area of the square	volume of the cube	surface area of the cube
as a number	3			
as an expression using an exponent	3			

Let's Talk About It

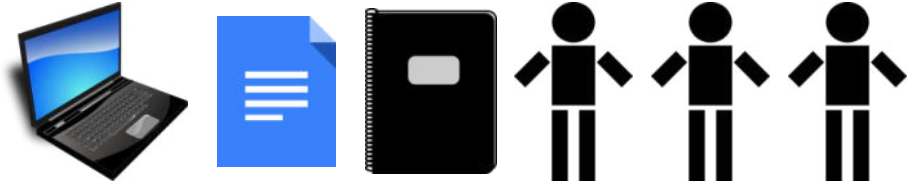
	side length of the square	area of the square	volume of the cube	surface area of the cube
as a number	3	9	27	54
as an expression using an exponent	3	3^2	3^3	$6(3^2)$

- First row: What calculation did you do to arrive at that answer? Where are those measurements in the image?
- Second row: How did you decide on the exponent for your answer? Where are those measurements in the image?

Calculating Surface Area

Activity 14.2

- MLR6: Three Reads



Work Quietly (10 min)

A cube has side length 10 inches. Jada says the surface area of the cube is 600 in^2, and Noah says the surface area of the cube is 3,600 in^2. Here is how each of them reasoned:

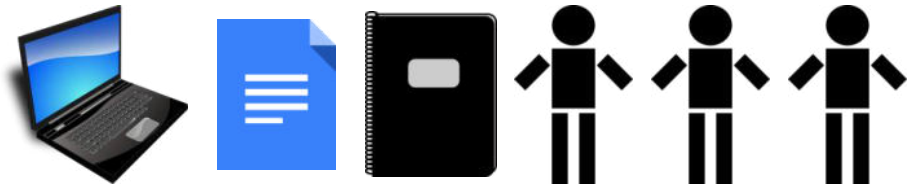
Jada's Method:

$6 \cdot 10^2$
$6 \cdot 100$
600

Noah's Method:

$6 \cdot 10^2$
60^2
$3{,}600$

Do you agree with either of them? Explain your reasoning.



1st Read: Shared Reading

What is this situation about?

2nd Read: Team Reading

What is countable or measureable in this story?

3rd Read: Team Reading

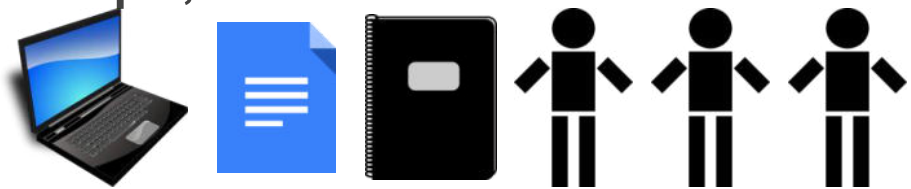
How might you begin to solve this task?

Start working on your own.

Then we'll discuss your thinking as a class!

Expression Explosion

- Activity 14.3
- MLR3: Clarify, Critique, Correct



Work quietly on your expression in each row, then check your answer with your partner.

Evaluate the expressions in one of the columns. Your partner will work on the other column. Check with your partner after you finish each row. Your answers in each row should be the same. If your answers aren't the same, work together to find the error.

$5^2 + 4$	$2^2 + 25$
$2^4 \cdot 5$	$2^3 \cdot 10$
$3 \cdot 4^2$	$12 \cdot 2^2$
$20 + 2^3$	$1 + 3^3$
$9 \cdot 2^1$	$3 \cdot 6^1$
$\frac{1}{9} \cdot \left(\frac{1}{2}\right)^3$	$\frac{1}{8} \cdot \left(\frac{1}{3}\right)^2$

Let's Talk About It

– – –

- Were there any expressions that were difficult to evaluate? Why were they difficult?
- Did you disagree with your partner about any rows? How did you settle the disagreement?
- Did you learn anything new about evaluating expressions with exponents?

Lesson Synthesis

- Write a numerical expression with an exponent and one other operation.
- Switch with a partner and evaluate their expression.

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Calculating Volumes

Cool Down 14.4

Cool Down

Jada and Noah wanted to find the total volume of a cube and a rectangular prism. They know the prism's volume is 20 cubic units, and they know the cube has side lengths of 10 units. Jada says the total volume is 27,000 cubic units. Noah says it is 1,020 cubic units. Here is how each of them reasoned:

Jada's Method:

$20 + 10^3$

30^3

27,000

Noah's Method:

$20 + 10^3$

$20 + 1{,}000$

1,020

Do you agree with either of them? Explain your reasoning.