

Lesson four - student resource sheet

Lesson Objective: Identify the base and the exponent of a given numerical expression and calculate its value.

Vocabulary Box

base of a power — The number that indicates the factor in a power. Example: 12 is the base of the power 12^5 .

exponent of a power — The number that indicates the number of times the base is used as a factor in a power. Example: 5 is the exponent of the power 12^5 .

square — The second power of a number; an exponent of 2. Example: 7^2 is read as seven squared.

cube — The third power of a number; an exponent of 3. Example: 15^3 is read as 15 cubed.



Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work.

- I. Rewrite each numerical expression as a multiplication problem with repeated factors. You do not need to calculate each value.

1. $234^3 =$ _____

2. $5,000^2 =$ _____

3. $12^{10} =$ _____

II. Calculate the value of each expression.

1. $16^2 =$ _____

2. $2^5 =$ _____

3. $11^2 =$ _____

4. $4^6 =$ _____

III. Write the following numerical expressions in order from least to greatest.

500, 6^4 , 3^6 , 200, 7^3



1. Calculate the product of $2^3 \times 2^4$. Show your work.

2. Calculate the sum of $2^{10} + 2^9$. Show your work.



You work for a company that makes posters to sell at concerts. Your job is in the packaging and shipping department. You want to impress your boss by redesigning the packaging to ship the posters for the Awesome Squared concert.

Answer the questions below using the formulas given. Be sure to show your work.

FORMULAS

Area of a square = length x width

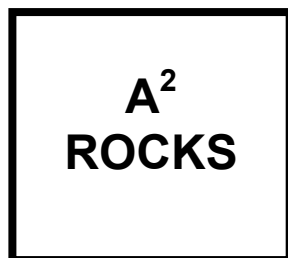
Volume of a cube = length x width x height

Unit of measurement for area is square units

Unit of measurement for volume is cubic units

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1. The Awesome Squared posters are square shaped. The posters are 6 inches wide and 6 inches long. What is the area of one poster?
2. Express the area of the poster, using a base and an exponent. _____
3. If the box to hold the posters is to be 8 inches wide, 8 inches long, and 8 inches high, what is the volume of the box?
4. Express the volume of the box, using a base and an exponent. _____
5. Why do you think we use the terms squared or cubed when we write expressions with numbers to the second power or third power?
6. Can you use exponents to express the area and volume of a rectangle that is not a square with equal sides? Explain.





1. $5^4 =$ _____

2. $6^2 =$ _____

3. Calculate the value of 12 cubed. _____

lesson five - student resource sheet

Lesson Objective: Identify the greater or lesser of two integers.

Vocabulary Box

Integers — The set of numbers containing zero, the natural numbers, and all the negatives of the natural numbers. Examples: -4 , 0 , 28 .

natural numbers — The counting numbers. Examples: 1 , 2 , 3 , 4 , 5

negative integer — An integer that is less than zero. Examples: -1 , -17 , -78 .

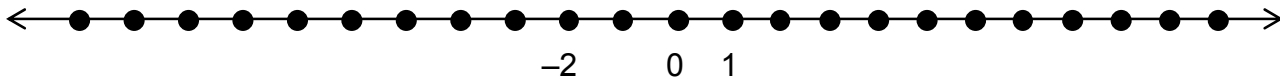
positive integer — An integer that is greater than zero. Examples: 5 , 8 , 11 .

opposites — Two numbers that lie the same distance from zero on the number line, but in opposite directions. Examples: -2 and 2 , -14 and 14 , -100 and 100 .



Guided Practice

I. Directions: Complete the number line by filling in the missing numbers.



II. Fill in the blanks. Write $<$, $>$, or $=$.

1. $3 \quad \underline{\hspace{1cm}} \quad 8$

2. $4 \quad \underline{\hspace{1cm}} \quad 1$

3. $-7 \quad \underline{\hspace{1cm}} \quad 7$

4. $-3 \quad \underline{\hspace{1cm}} \quad -8$

5. $11 \quad \underline{\hspace{1cm}} \quad -2$

6. $10 \quad \underline{\hspace{1cm}} \quad -1$

7. $-6 \quad \underline{\hspace{1cm}} \quad 0$

III. Rewrite each set of integers in order from least to greatest. Please work on your own.

1. $3, 5, -2, 0, 7, -6, -11$ $\underline{\hspace{4cm}}$

2. $-12, -25, 36, 42, -56, -10$ $\underline{\hspace{4cm}}$

3. $4, -4, 19, -19, 0, -77, 77$ $\underline{\hspace{4cm}}$

4. $99, -25, -236, 13, -2, 145, 12$ $\underline{\hspace{4cm}}$

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Summary/Closure

A. Vocabulary Words

Draw a line connecting each vocabulary term to the set of numbers that is the best example.

integers	$-18, -19, -25$
positive integers	-20 and 20 , -75 and 75
negative integers	$1, 2, 3, 4, 5, 6, 7, \dots$
natural numbers	$12, -8, -15, 19, 20$
opposites	$45, 10, 35, 70$

B. Summarize What We Learned Today

Listed below are the daily profits for a pizza parlor. Place the days in order from the day with the least profit to the day with the greatest.

Monday: \$300 Tuesday: $-\$50$ Wednesday: \$450 Thursday: $-\$15$ Friday: \$800

lesson six - student resource sheet

Lesson Objective: Identify the greater or lesser of two integers.

Vocabulary Box

integers — The set of numbers containing zero, the natural numbers, and all the negatives of the natural numbers. Examples: -4 , 0 , 28 .

natural numbers — The counting numbers. Examples: 1 , 2 , 3 , 4 , 5

negative integer — An integer that is less than zero. Examples: -1 , -17 , -78 .

positive integer — An integer that is greater than zero. Examples: 5 , 8 , 11 .

opposites — Two numbers that lie the same distance from zero on the number line, but in opposite directions. Examples: -2 and 2 , -14 and 14 , -100 and 100 .



Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work.

I. Compare the following integers. Use $<$, $>$, or $=$.

1. -7 6

2. -44 -18

3. 12 $-3,000$

4. 33 56

5. 0 -45

6. -233 $-1,000$

II. Draw a line connecting each number to its opposite.

-4 56 -17 23 -89 32

89 -32 -56 -23 17 4

III. In the blank, write an integer that has a value between the given integers.

1. -36, _____, -30

2. -215, _____, -200

3. -7, _____, 5

4. -100, _____, -92

BONUS?

Fill in the blanks by completing the pattern.

1. -45, -40, -35, _____, -25, -20, _____

2. -8, -6, -4, _____, _____, 2, 4, 6, 8

lesson six - student resource sheet

Problem Solving

You are getting ready to enter the school science fair. You are interested in weather, so you have decided to track the high and low temperatures in your backyard every Saturday for three months. Use the data below to answer the questions.

SATURDAY	1	2	3	4	5	6	7	8	9	10	11
HIGH (°C)	10	0	5	28	35	8	14	-1	40	38	50
LOW (°C)	-12	-11	-2	17	26	-1	-5	-4	27	30	41

1. On which Saturday was the high temperature the highest?
2. On which Saturday was the low temperature the lowest?
3. Order the low temperatures from lowest to highest.
4. What was the median high temperature? Hint: If you put the temperatures in order from lowest to highest, the median is the one exactly in the middle.
5. What was the range of the low temperatures? Hint: The range of a set of data is the difference in the highest and lowest number.



1. Circle the number that is out of order: -46, -34, -21, -56, -10
2. Which is greater, -18 or 9?
3. Compare 6 and -6 with $<$, $>$, or $=$.

