

5.4 Exponents and Powers

Chapter 5: Introduction to Algebra

Name: _____

Date: _____

Class/Period: _____

Problem 5.49 Directions:

Identify, read, write, expand, or evaluate as directed.

Identify the base and exponent in 11^3 .

Problem 5.52 Directions:

Identify, read, write, expand, or evaluate as directed.

Read m^5 aloud.

Problem 5.50 Directions:

Identify, read, write, expand, or evaluate as directed.

Identify the complete base and exponent in $(-6)^4$.

Problem 5.53 Directions:

Identify, read, write, expand, or evaluate as directed.

Write $6 \cdot 6 \cdot 6 \cdot 6$ as a power.

Problem 5.51 Directions:

Identify, read, write, expand, or evaluate as directed.

Read 9^2 aloud in two ways.

Problem 5.54 Directions:

Identify, read, write, expand, or evaluate as directed.

Write $0.3 \cdot 0.3 \cdot 0.3$ as a power.

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Problem 5.55 Directions:

Identify, read, write, expand, or evaluate as directed.
Expand 7^3 into repeated factors.

Problem 5.58 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate 12^2 .

Problem 5.56 Directions:

Identify, read, write, expand, or evaluate as directed.
Expand $\left(\frac{2}{5}\right)^4$ into repeated factors.

Problem 5.59 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate $(0.4)^2$.

Problem 5.57 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate 4^3 .

Problem 5.60 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate $\left(\frac{3}{4}\right)^2$.

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Problem 5.61 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate 13^1 .

Problem 5.64 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate -3^3 .

Problem 5.62 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate 27^0 .

Problem 5.65 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate $(-3)^2$.

Problem 5.63 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate $(-3)^3$.

Problem 5.66 Directions:

Identify, read, write, expand, or evaluate as directed.
Evaluate -3^2 .

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Problem 5.67 Directions:

Identify, read, write, expand, or evaluate as directed.

Compare 2^6 and 4^3 using $<$, $>$, or $=$.

Problem 5.70 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $5(2^3) - 6$.

Problem 5.68 Directions:

Identify, read, write, expand, or evaluate as directed.

Compare 5^3 and 3^5 using $<$, $>$, or $=$.

Problem 5.71 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $40 \div 2^3 + 1$.

Problem 5.69 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $7 + 2^4$.

Problem 5.72 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $3^2 + 2(5^2 - 21)$.

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Problem 5.73 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $x^2 + 4$ when $x = 6$.

Problem 5.76 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $(2p)^2 + q$ when $p = -2$ and $q = 7$.

Problem 5.74 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $2n^3 - 1$ when $n = -2$.

Problem 5.77 Directions:

Identify, read, write, expand, or evaluate as directed.

For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

For whole numbers a , $a^2 > a$.

Problem 5.75 Directions:

Identify, read, write, expand, or evaluate as directed.

Evaluate $4a^2 - b^2$ when $a = -3$ and $b = 5$.

Problem 5.78 Directions:

Identify, read, write, expand, or evaluate as directed.

For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

For integers a , $(-a)^2 = a^2$.

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Problem 5.79 Directions:

Identify, read, write, expand, or evaluate as directed. For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

For negative integers a , a^3 is negative.

Problem 5.82 Directions:

Identify, read, write, expand, or evaluate as directed. For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

Construct a whole-number power with exponent greater than 1 and value strictly between 50 and 100.

Problem 5.80 Directions:

Identify, read, write, expand, or evaluate as directed. For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

For nonzero numbers a , $a^0 = a$.

Problem 5.83 Directions:

Identify, read, write, expand, or evaluate as directed. Explain each student's mistake and write a correct statement.

A student writes $2^3 = 2 \cdot 3 = 6$.

Problem 5.81 Directions:

Identify, read, write, expand, or evaluate as directed. For each statement, decide whether it is always, sometimes, or never true for the stated values. Give examples or reasoning.

Construct two different powers, each with exponent greater than 1, that both have value 64.

Problem 5.84 Directions:

Identify, read, write, expand, or evaluate as directed. Explain each student's mistake and write a correct statement.

A student writes $3x^2 = (3x)^2$ for every x .

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Problem 5.85 Directions:

Identify, read, write, expand, or evaluate as directed.

Explain each student's mistake and write a correct statement.

A student writes $(-5)^2 = -25$.

Problem 5.86 Directions:

Identify, read, write, expand, or evaluate as directed.

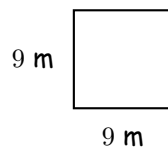
Explain each student's mistake and write a correct statement.

A student writes $2^3 + 2^2 = 2^5$.

Problem 5.87 Directions:

Identify, read, write, expand, or evaluate as directed.

The diagram represents a square patio.



Write its area using a power, then evaluate the area with correct units.

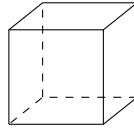
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Problem 5.88 Directions:

Identify, read, write, expand, or evaluate as directed.

The diagram represents a cube-shaped storage box.



1.5 m

Write its volume using a power, then evaluate the volume with correct units.