

Expression Power Lab

Build, rewrite, and evaluate number expressions.

GRADE 6 • TEKS 6.7.A

6.7.A "generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;"

NAME _____

DATE _____

THE BIG IDEA

Use parentheses first, then exponents, then multiplication and division from left to right, and finally addition and subtraction from left to right. Prime factorization breaks a composite number into prime factors, and repeated prime factors can be written with an exponent.

WORKED EXAMPLE

Use prime factorization to rewrite and evaluate: $(18 / (2 \times 3)) + 3^2$

1. $18 = 2 \times 3^2$.

2. $(18 / (2 \times 3)) + 3^2 = 3 + 3^2$.

3. $3^2 = 9$.

4. $3 + 9 = 12$.

Answer: 12

PRACTICE 6 problems

- 1** Write an equivalent expression using an exponent: $11 \times 11 \times 11 \times 11$.

ANSWER _____

- 2** Write 625 as a prime factorization using an exponent.

ANSWER _____

- 3** Evaluate: $4 + 6 \times 5$.

ANSWER _____

- 4** Evaluate: $(17 - 9) \times 4$.

ANSWER _____

- 5** Rewrite $64 / 8 + 7 \times 7$ using an exponent, then evaluate.

ANSWER _____

- 6** Write 5^4 as repeated multiplication, then evaluate.

ANSWER _____

APPLY IT Show your work

- 1** At a gaming event, Mia earns 8 tokens in each of 7 rounds. She uses 15 tokens to unlock an avatar. Write and evaluate an expression to find how many tokens she has left.

WORK SPACE

ANSWER _____

- 2** The student council has 385 glow wristbands for a school event. Write 385 as a prime factorization to help plan equal-sized prize packs.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Use prime factorization to simplify before you evaluate: $(55 \times 49) / 35 + 6^4$. Write an equivalent expression and its value.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Write an equivalent expression using an exponent: $11 \times 11 \times 11 \times 11$.	11^4
2	Write 625 as a prime factorization using an exponent.	5^4
3	Evaluate: $4 + 6 \times 5$.	34
4	Evaluate: $(17 - 9) \times 4$.	32
5	Rewrite $64 \div 8 + 7 \times 7$ using an exponent, then evaluate.	$64 \div 8 + 7^2 = 57$
6	Write 5^4 as repeated multiplication, then evaluate.	$5 \times 5 \times 5 \times 5 = 625$

PART 2 • APPLY IT

1. **41 tokens** Multiply the tokens earned in all rounds first, then subtract the tokens Mia uses.
2. **$5 \times 7 \times 11$** Divide 385 by 5 to get 77, then factor 77 into 7×11 .

CHALLENGE

$$11 \times 7 + 6^4 = 1,373$$

Accept prime factors in any order. Accept equivalent expressions that follow the correct order of operations and have the correct value.