

Number Ninja Moves

Simplify expressions carefully, one step at a time.

GRADE 7 • 7.PFA.2.a

7.PFA.2.a "Use the order of operations and apply the properties of real numbers to simplify numerical expressions. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers..."

NAME _____

DATE _____

FOLLOW THE ORDER

First simplify inside grouping symbols and absolute value bars. Then evaluate exponents and square roots, multiply or divide from left to right, and add or subtract from left to right. Use the properties of real numbers to keep your work organized.

WORKED EXAMPLE

$$[15 \div 5 + 3^2] \cdot |11 - 20|$$

1. $15 \div 5 = 3$ and $3^2 = 9$.
2. $[3 + 9] = 12$ and $|11 - 20| = 9$.
3. $12 \cdot 9 = 108$.

Answer: 108

PRACTICE 6 problems

1 Simplify: $7 + 6 \cdot 8$

ANSWER _____

2 Simplify: $|14 - 22| + 2^2$

ANSWER _____

3 Simplify: $[19 - 7] \div 6 + 8$

ANSWER _____

4 Simplify: $\sqrt{49} + 6^2 \div 9$

ANSWER _____

5 Simplify: $21 - [2 \cdot 7] + 1$

ANSWER _____

6 Simplify: $[10 + 8] \div |6 - 9|$

ANSWER _____

APPLY IT Show your work

- 1** In a video game, you earn 2^4 coins from a bonus chest and 6 coins for each of 7 quests. Then you spend 13 coins in the game shop. How many coins do you have after shopping?

WORK SPACE

ANSWER _____

- 2** A student club buys 4 packs of sticker sheets. Each pack has 9 sheets, and each sheet costs \$2. The club uses a \$13 coupon. How much does the club pay?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Simplify: $[\sqrt{81} + |14 - 22|] \cdot 2^4 - 7$

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Simplify: $7 + 6 \cdot 8$	55
2	Simplify: $ 14 - 22 + 2^2$	12
3	Simplify: $[19 - 7] / 6 + 8$	10
4	Simplify: $\sqrt{49} + 6^2 / 9$	11
5	Simplify: $21 - [2 \cdot 7] + 1$	8
6	Simplify: $[10 + 8] / 6 - 9 $	6

PART 2 • APPLY IT

1. **45 coins** Evaluate 2^4 , then add the coins from the quests and subtract the coins spent: $16 + 6 \cdot 7 - 13 = 45$.
2. **\$59** Find the cost of all sticker sheets before subtracting the coupon: $4 \cdot 9 \cdot 2 - 13 = 59$.

CHALLENGE

265

Accept equivalent numerical work that follows the correct order of operations. For word problems, accept answers with or without units when the numerical value is correct.