

Expressions and Equations

Number Line Game:
**NEGATIVE
EXPONENTS**

Aligned to the Common
Core State Standards

8.EE.A.1

Grades

8-10

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Teacher's Guide

CCSS 8.EE.A.1

Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = \frac{1}{3^3} = \frac{1}{27}$

Objectives

- Students will practice simplifying and ordering expressions involving negative exponents.

Materials

- One set of 35 Number Line Game cards
- Scissors (for prep)

Procedure

- Before students arrive, cut out one set of 35 Number Line Game cards. Consider laminating to keep cards in good condition for future use.
- Pass out one card per student. Not all cards need to be used for the activity, but you do have the option to give some students two cards.
- Ask students to line themselves up around the room in order from least to greatest value.
- Have each student read the letter on their card aloud in order to check for correctness. Encourage adjustments as needed.
- Collect cards.
- Repeat 1-2 more times for additional practice. Students should receive a different card each time.
- For an added challenge, ask students to complete the task silently, using only hand signals to communicate with one another.
- NOTE: Some cards are more difficult to simplify than others. Consider differentiating based on readiness when passing them out.

C

$$-\frac{1}{4^{-2}} - 1$$

BB

$$-\frac{4^{-2}}{4^{-4}}$$

V

$$-\frac{1}{5^{-2}} + 2^3 + 2$$

P

$$\frac{-2^3 \cdot 2^7}{2^6} + \frac{1}{2^{-1}}$$

CC

$$-\frac{1}{4^{-2}} + 3$$

K

$$-3^2 - \frac{1}{3^{-1}}$$

Q

$$-\frac{1}{3^{-2}} - 2$$

A

$$-\frac{1}{2^{-3}} - 2$$

J

$$-\frac{1}{3^{-2}}$$

W

$$-\frac{1}{2^{-3}}$$

DD

$$-\frac{1}{4^{-2}} + \frac{1}{3^{-2}}$$

B

$$-\frac{1}{2^{-3}} + 2$$

EE

$$\frac{5^{-1}}{5^{-2}}$$

Y

$$\frac{1}{2^{-2}}$$

D

$$-3 \cdot \frac{1}{1^{-3}}$$

S

$$-\frac{1}{2^{-1}}$$

L

$$-8^0$$

E

$$5^{-2} - 5^{-2}$$

R

$$6^0$$

X

$$2^{-5} \cdot 2^6$$

FF

$$3^{-2} \cdot 3^3$$

M

$$\frac{1}{2^{-2}}$$

F

$$\frac{1}{5^{-1}}$$

GG

$$2 \cdot \frac{1}{3^{-1}}$$

T

$$\frac{7^{-3}}{7^{-4}}$$

Z

$$\frac{1}{2^{-3}}$$

O

$$\frac{1}{3^{-2}}$$

U

$$2 \cdot \frac{1}{5^{-1}}$$

AA

$$\frac{1}{4^{-2}} - 5$$

I

$$3 \cdot \frac{1}{2^{-2}}$$

II

$$\frac{1}{3^{-3}} - 2 \cdot 7$$

H

$$4^2 - \frac{1}{2^{-1}}$$

N

$$3 \cdot \frac{1}{5^{-1}}$$

G

$$\frac{1}{2^{-4}}$$

HH

$$\frac{1}{4^{-2}} + 1^{-2}$$

Answer Key

-17	C
-16	BB
-15	V
-14	P
-13	CC
-12	K
-11	Q
-10	A
-9	J
-8	W
-7	DD
-6	B
-5	EE
-4	Y
-3	D
-2	S
-1	L
0	E

1	R
2	X
3	FF
4	M
5	F
6	GG
7	T
8	Z
9	O
10	U
11	AA
12	I
13	II
14	H
15	N
16	G
17	HH

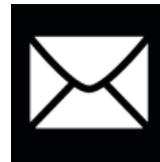
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