

Negative Exponents

Score _____ Per _____

Answer the following.

- If an exponent is **positive or zero**, it tells how many copies of the base 1 is _____ by.
- If an exponent is **negative**, it tells how many copies of the base 1 is _____ by.
- 8^{-3} can be thought of as 1 divided by _____ copies of 8.
- Write x^{-5} using a positive exponent.

- Write $\frac{1}{y^{-2}}$ using a positive exponent.

Complete the table.

Power	Meaning	Evaluated
2^4	$1 \cdot 2 \cdot 2 \cdot 2 \cdot 2$	16
2^3	6. _____	8
7. _____	$1 \cdot 2 \cdot 2$	4
2^1	$1 \cdot 2$	8. _____
2^0	1	1
2^{-1}	$\frac{1}{2^1} = \frac{1}{2}$	$\frac{1}{2}$
2^{-2}	$\frac{1}{2^2} = \frac{1}{2 \cdot 2}$	9. _____
10. _____	$\frac{1}{2^3} = \frac{1}{2 \cdot 2 \cdot 2}$	$\frac{1}{8}$
2^{-4}	11. _____	$\frac{1}{16}$

Write each expression in simplified exponent form (using only positive exponents).

EX: $\frac{1}{2^{-5}} = \textcircled{2^5}$

12. 5^{-3}

13. -3^{-4}

14. $x^2 \cdot 5^{-2}$

15. m^{-13}

Write each expression in simplest form. All numbers should be evaluated, and exponents on variables should be positive.

EX: $\frac{x^{-3}}{2^{-5}} = \frac{2^5}{x^3} = \textcircled{\frac{32}{x^3}}$

16. $\frac{1}{6^{-2}} + 2^0$

17. $2^{-2} + 3^{-1}$

18. $\frac{1}{4^{-1}} - y^0$

19. a^{4-7}

20. $2^{-1} \div \frac{5}{4}$

21. $-\frac{9}{5} \div \frac{1}{2^{-1}}$

