

Day 22: Review

Close to Proficient: Simplify. Your answer should contain only positive exponents and no zero exponents.

1) $n^2 \cdot n^4 = \boxed{n^6}$

2) $a^3 a^2 = \boxed{a^5}$

3) $(n^2)^4 = \boxed{n^8}$

4) $(3x^3)^3 = \cancel{27x^9} 3^3 x^9 = \boxed{27x^9}$

5) $\frac{n^5}{n^2} = \boxed{n^3}$

6) $\frac{12n^4}{2n} = \boxed{6n^3}$

7) $m^0 = \boxed{1}$

8) $k^{-2} = \boxed{\frac{1}{k^2}}$

Proficient and Highly Proficient: Simplify. Your answer should contain only positive whole number exponents, and no zero exponents.

Simplify. Your answer should contain only positive whole number exponents, and no zero exponents.

9) $(x^4)^0 \cdot 2x^2 = (1)2x^2 = \boxed{2x^2}$

10) $p^2 \cdot p^2 \cdot (2p^4)^3 \cdot p^4 (2^3 p^{12}) = \boxed{8p^{16}}$

11) $\frac{4k}{2k \cdot 4k^3} = \frac{4k}{8k^4} = \frac{1}{8k^3} = \boxed{\frac{1}{8k^3}}$

12) $\frac{p^0}{2p^3 \cdot 2p^3} = \frac{1}{4(p^3 p^3)} = \boxed{\frac{1}{4p^6}}$

13) $4n^{-1} \cdot 2n^{-2} = \frac{4}{n} \cdot \frac{2}{n^2} = \boxed{\frac{8}{n^3}}$

14) $2v^{-1} \cdot 2v^2 = \frac{2}{v} \cdot 2v^2 = \frac{4v^2}{v} = \boxed{4v}$

15) $2x^4 y^4 \cdot 4y^3 = 8x^4 y^4 y^3 = \boxed{8x^4 y^7}$

16) $(3m^2 n^3)^3 = 3^3 m^6 n^9 = \boxed{27m^6 n^9}$

17) $\frac{3yx^2}{2x} = \boxed{\frac{3yx}{2}}$

18) $\frac{ba^3}{4a^4} = \boxed{\frac{b}{4a}}$

19) $9^{\frac{1}{2}} = \sqrt{9} = \boxed{3}$

20) $16^{\frac{3}{4}} = \sqrt[4]{16^3} = \boxed{8}$

21) $(x^6)^{\frac{1}{2}} = \boxed{x^3}$

19) $(x^0 y^2)^4 \cdot (2x^3 y^2)^2$
 $= (1y^8)(2^2 x^6 y^4) = \boxed{4x^6 y^{12}}$

20) $\frac{2x^4 y^{-4}}{2xy^3 \cdot 4x^4 y^0} = \frac{2x^4}{y^4 y^3 x^4 (4)} = \frac{2x^4}{8y^7 x^4} = \boxed{\frac{1}{4y^7 x}}$

21) $\frac{yx^3 \cdot y^4}{2x^{-3}} = \frac{y^5 x^3}{2} = \boxed{\frac{y^5 x^6}{2}}$

22) $\frac{(2ba^3)^4}{2b^{-1}} = \frac{2^4 b^4 a^{12} b}{2} = 2^3 b^5 a^{12} = \boxed{8a^{12} b^5}$

KEY

Exponential Functions

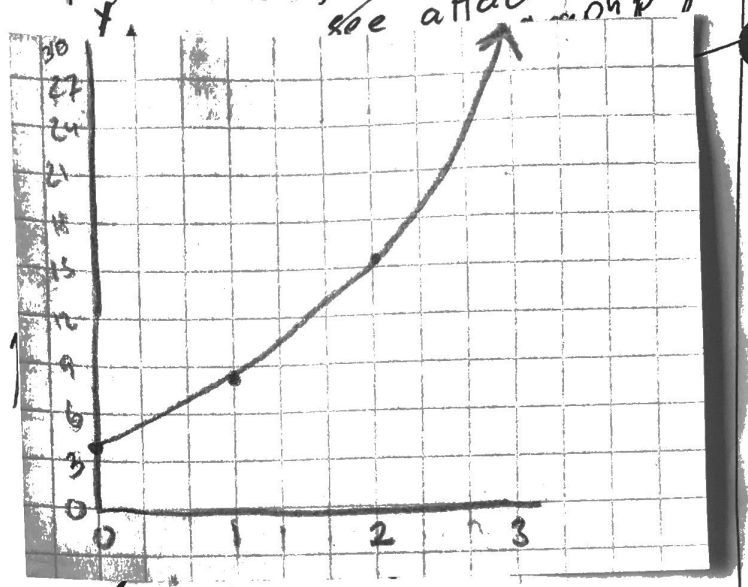
Close to Proficient: Make a table and graph the exponential equation $y = 4 \cdot 2^x$

a. Table

x	$y = 4 \cdot 2^x$
0	$y = 4 \cdot 2^0 = 4(1) = 4$
1	$y = 4 \cdot 2^1 = 4(2) = 8$ $\downarrow \times 2$
2	$y = 4 \cdot 2^2 = 4(4) = 16$ $\downarrow \times 2$
3	$y = 4 \cdot 2^3 = 4(8) = 32$ $\downarrow \times 2$

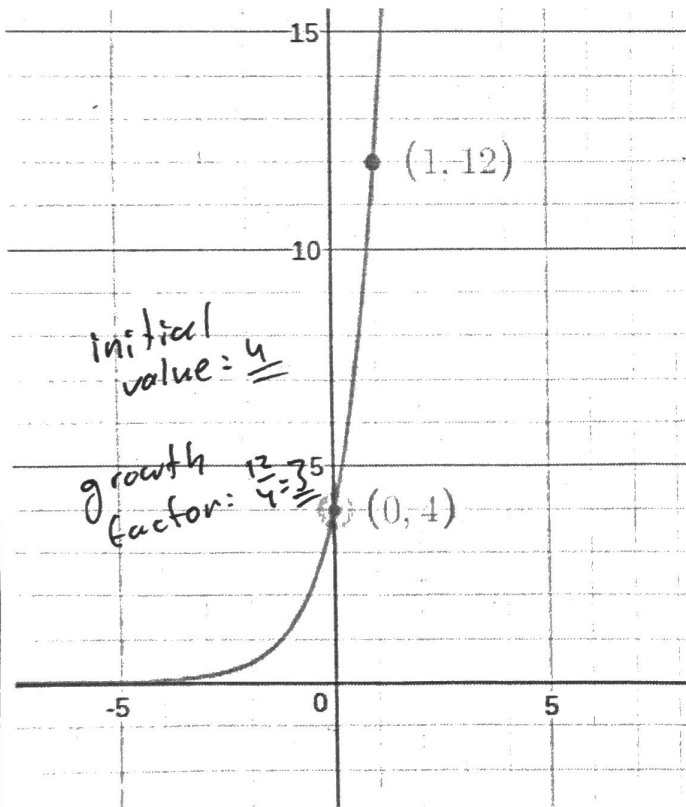
b. Is this exponential growth or decay? Explain
exponential growth, because as x grows y also grows (by a factor of 2 each time)

c. Graph $y = 4 \cdot 2^x$. Label your axes.



Proficient/ Highly Proficient:

Write an equation of this graph.



$y = 4(3)^x$

Write an equation for this table.

x	y
0	64 $\downarrow \frac{3}{4}$
1	48 \downarrow
2	36 $\downarrow \frac{3}{4}$
3	27 $\downarrow \frac{3}{4}$

decay factor: $\frac{3}{4}$
 start value: 64

$y = 64 \cdot (0.75)^x = 64 \left(\frac{3}{4}\right)^x$

Check that your equation works:

$64 = 64(0.75)^0 = 64 \checkmark$

$48 = 64(0.75)^1 = 48 \checkmark$

$36 = 64(0.75)^2 = 36 \checkmark$

$27 = 64(0.75)^3 = 27 \checkmark$

set table y values equal to equation with table x values substituted in

equation works with all of the data pts in the table