Honors Algebra 1 Name UPDATED 2020 KEY

8.1 - 8.3 Working with Exponents (V1)

Date _____ Period ____

8.1) Simplify. Your answer should contain only positive exponents.

1) $-3m \cdot -2m^2$

$-3 \cdot -2\ m^{1+2} =$

$6m^3$

2) $-x^4y^3 \cdot -x^4y^3$

$-1 \cdot -1\ x^{4+4}\ y^{3+3} =$

x^8y^6

3) $-3x^3y^4 \cdot -2x^4y^3$

$-3 \cdot -2\ x^{3+4}\ y^{3+4} =$

$6x^7y^7$

4) $4x^2y^2 \cdot -y^3 \cdot -x^2y^2$

$4 \cdot -1 \cdot -1\ x^{2+2}\ y^{2+3+2} =$

$4x^4y^7$

5) $2x^2y^4 \cdot 4y$

$2 \cdot 4\ x^2\ y^{4+1} =$

$8x^2y^5$

6) $-mn^2 \cdot -3n^3$

$-1 \cdot -3\ m\ n^{2+3} =$

$3mn^5$

7) $3u^3v^2 \cdot 3u$

$3 \cdot 3\ u^{3+1}\ v^2 =$

$9u^4v^2$

8) $-4x^4 \cdot -2y^2$

$-4 \cdot -2\ x^4\ y^2 =$

$8x^4y^2$

9) $-4b^4 \cdot a^3b^3 \cdot -3a^3b^3$

$-4 \cdot -3\ a^{3+3}\ b^{4+3+3} =$

$12a^6b^{10}$

10) $x^3y^3 \cdot -4x^2y^4 \cdot 3x^2y^2$

$-4 \cdot 3\ x^{3+2+2}\ y^{3+4+2} =$

$-12x^7y^9$

11) $4x \cdot 4x^2y^3$

$4 \cdot 4\ x^{1+2}\ y^3 =$

$16x^3y^3$

12) $2m^3n^3 \cdot 3nm^4$

$2 \cdot 3\ m^{3+4}\ n^{3+1}$

$6m^7n^4$

TIPS

1. TREAT NUMBERS LIKE NUMBERS. GIVE SIMPLIFIED IMPROPER FRACTIONS
2. FOR EXPONENTS SHOW HOW YOU +, −, ÷
3. ORDER VARIABLES ABC...

8.2) Simplify. Leave answers with improper fractions using only positive exponents.

13) $\frac{4k^3}{-2k} = -2k^{3-1} =$

$\boxed{-2k^2}$

14) $\frac{4x^{-1}}{-4x^{2}} = -1x^{-1-(+2)} =$

$-1x^{-1+2} =$

$-1x^1 = \boxed{-x}$ ← simplify

15) $\frac{b^{-1}}{-4b} = \frac{1\ B^{-1-1}}{-4}$

$= \frac{B^{-2}}{-4} = \boxed{\frac{-1}{4B^2}}$

16) $-\frac{x^3}{4x^3} = \frac{-1\ x^{3-3}}{4}$

$= \frac{-1x^0}{4} = \frac{-1\cdot 1}{4} = \boxed{\frac{-1}{4}}$

17) $-\frac{4x^4}{x^{-4}} = -4x^{4+4} =$

$\boxed{-4x^8}$

18) $\frac{-3v^4}{-2v} = \frac{3v^{4-1}}{2} =$

$\boxed{\frac{3v^3}{2}}$

19) $\frac{n^2}{3n^3} = \frac{1\ n^{2-3}}{3} =$

$\frac{N^{-1}}{3} = \boxed{\frac{1}{3N}}$

20) $\frac{2v^4}{v^{-3}} = 2v^{4+3} =$

$\boxed{2v^7}$

21) $\frac{-4x^2}{-3x^4} = \frac{4\ x^{2-4}}{3} =$

$\frac{4x^{-2}}{3} = \boxed{\frac{4}{3x^2}}$

22) $\frac{2x^{-4}}{x} = 2x^{-4-1} =$

$\frac{2x^{-5}}{1} = \boxed{\frac{2}{x^5}}$

23) $\frac{2x^4}{x^4} = 2x^{4-4} =$

$2x^0 = 2\cdot 1$

$= \boxed{2}$

24) $\frac{-2n^4}{-3n^{-2}} = \frac{2\ n^{4+2}}{3} =$

$\boxed{\frac{2n^6}{3}}$