

Simplify each expression. NO NEGATIVE EXPONENTS IN YOUR ANSWER!

1) $x^0 \cdot 2x^{2/3} \cdot 3x^{-2}$
 $6x^{-4/3}$
 $\frac{6}{x^{4/3}}$

2) $2a^{3/4} \cdot a^{2/3}$
 $2a^{17/12}$

3) $4m^{3/2}$
 $4m^{5/2}$

4) $5z^{-1/4}$
 $\frac{5}{z^{1/4}}$

5) $\frac{8x^{2/3}}{2x^{1/3}}$
 $4x^{1/3}$

6) $\frac{2x^{-3/2}}{x^{-1/2}}$
 $\frac{2x^{-1}}{x}$

7) $\frac{5y^{1/2}}{15y^{2 1/2}}$
 $\frac{1}{3} y^{-3/2} = \frac{1}{3y^{3/2}}$

8) $\frac{4m^{7/4}}{2m^{3/4}}$
 $2m^{1}$

9) $(v^2)^{1/2}$
 v

10) $(x^{4/3})^{-2}$
 $x^{-8/3} = \frac{1}{x^{8/3}}$

11) $(n^{3/4})^{1/3}$
 $n^{3/12} = n^{1/4}$

12) $(r^0)^{2/3}$
 1

$$13) (a^{2/3} b^{5/4})^{1/6}$$

$$a^{2/18} b^{5/24}$$

$$\boxed{a^{1/9} b^{5/24}}$$

$$14) (16x^4)^{3/2}$$

$$64x^{12/2}$$

$$\boxed{64x^6}$$

$$15) (m^3 n^{-2/5} p)^6$$

$$m^{18} n^{-12/5} p^6$$

$$\frac{m^{18} p^6}{n^{12/5}}$$

$$16) \left(\frac{a^3}{b^{1/2}}\right)^{3/4}$$

$$\boxed{\frac{a^{9/4}}{b^{3/8}}}$$

$$17) \left(\frac{3c^{-1/3}}{d^{2/3}}\right)^3$$

$$\frac{27c^{-1}}{d^{2/3}} = \frac{27}{c \cdot d^2}$$

$$18) (x^2)^{5/3} \cdot x^{10/3}$$

$$x^{10/3} \cdot x^{10/3}$$

$$\boxed{x^{20/3}}$$

$$19) \frac{a^0 b^0 \cdot (b^{-2/3})^{1/3}}{a^{-1} b^{1/3}}$$

$$\frac{b^{-2/9}}{a^{-1} b^{1/3}}$$

$$\frac{a}{b^{2/9} \cdot b^{3/9}}$$

$$\boxed{\frac{a}{b^{5/9}}}$$

$$20) \left(\frac{a^3 b^0}{a^{1/4} b^{1/3} \cdot a^{-2} b^3}\right)^{-1/2}$$

$$\frac{a^{-3/2}}{a^{-7/8} \cdot b^{-1/6} \cdot a^{3/8} b^{3/2}}$$

$$\frac{a^{-3/2}}{a^{7/8} \cdot b^{-5/3}} = \frac{b^{5/3}}{a^{7/8} \cdot a^{3/2}^{12/8}}$$

$$= \boxed{\frac{b^{5/3}}{a^{19/8}}}$$