

Name: _____

SM2 3.3: More Fractional Exponent Operations

1) $(16x^4)^{3/2}$

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

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

4) $(9x^6y^2)^{1/2}$

5) $(x^{1/2}y)(x^{-3/4}y^{1/2})$

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

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

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

9) $\left(\frac{2w^{1/3}}{w^{-3/4}}\right)^3$

10) $(a^{1/2}b^{-1/3})(ab)$

$$11) \frac{9^{1/4} h^{1/2} k^{3/2}}{9^{3/4} h^{1/3} k^2}$$

$$12) \frac{4^{1/4} s^{1/3} t^{-1/2}}{(4s^2 t^{-3})^{-1/4}}$$

$$13) \frac{a^0 b^0 \cdot (b^{-2/3})^{1/3}}{a^{-1} b^{1/3}}$$

$$14) \left(\frac{a^3 b^0}{a^{1/4} b^{1/3} \cdot a^{-2} b^3} \right)^{-7/4}$$

Simplify each expression.

$$15) \sqrt{x} \cdot \sqrt[3]{x}$$

$$16) \sqrt{\sqrt[3]{y}}$$

$$17) \sqrt[4]{\sqrt[5]{\sqrt[6]{z}}}$$

$$18) \sqrt[5]{(\sqrt[3]{x})^{1/4}}$$

$$19) x^{3/4} \cdot \sqrt[4]{x}$$

$$20) (\sqrt{m^{1/2}}) \cdot \sqrt[3]{m^{3/4}}$$