

Test

1.  $\sqrt[3]{5^4} = 5^{4/3}$

2.  $16^{3/4} = \sqrt[4]{16^3} = (2)^3 = 8$

$16^{0.75} = 8$

3.  $(x^6)^{2/3} = x^{12/3} = x^4$

4.  $8^{1/3} = \sqrt[3]{8} = 2$

5.  $\left(\frac{-5}{3}\right)^{-3} = \left(\frac{3}{-5}\right)^3 = -\frac{27}{125}$  (C)

6. ~~a)  $(-2)^4 = 16$~~

✓ b)  $2^{-4} = \left(\frac{1}{2}\right)^4 = \frac{1}{16}$

~~c)  $-4^{-2} = -\frac{1}{4^2} = -\frac{1}{16}$~~

d) 16

7.  $\frac{x^2 x^{-5}}{x^{-4}} = \frac{x^{-3}}{x^{-4}} = x^{-3-(-4)} = x^1 = x$

8.  ~~$(2x^2 (-5x^2)^3)$~~   
 $(2x^2)^3$   
 $2^3 x^6$   
 $8x^6$

9.  $(3x^{-1})^2 (2x^2)^3$   
 $3^2 x^{-2} \cdot 2^3 x^6$   
 $9x^{-2} \cdot 8x^6$   
 $72x^4$

10.  $(x^{-4} y^{-3})(x^3 y^{-4})$

$x^{-1} y^{-7}$

$\frac{1}{x y^7} = \frac{1}{(-1)(3)^7} = \frac{-1}{2187}$

$$1a) \frac{-24x^{-3}y^{-6}}{6x^{-4}y^{-1}}$$

$$-4x(y^{-7})$$

$$\frac{-4x}{y^7}$$

$$b) \frac{(8x^{-4}y^{-2})^2}{(2x^1y^6)^2}$$

$$\frac{8^2x^{-8}y^{-4}}{2^2x^2y^{12}}$$

$$\frac{64x^{-10}y^{-16}}{4}$$

$$\frac{16}{x^{10}y^{16}}$$

$$c) (2x^{-1}y^3)^4 \cdot (3x^1y^{-2})^2$$

$$2^4 x^{-4} y^{12} \cdot 3^2 x^2 y^{-4}$$

$$16x^{-4}y^{12} \cdot 9x^2y^{-4}$$

$$144x^{-2}y^8$$

$$\frac{144y^8}{x^2}$$

$$d) \frac{(2x^3y)^0 (x^{-2}y^3)^5}{(x^1y^{-2})^3}$$

$$\frac{x^{-10}y^{15}}{x^3y^{-6}} = x^{-13}y^{21}$$

$$= \frac{y^{21}}{x^{13}}$$

$$e) \left(x^{\frac{1}{2}}\right)^{\frac{3}{4}} \cdot \left(x^{\frac{5}{7}}\right)^{\frac{1}{8}}$$

$$x^{\frac{3}{8}} \cdot x^{\frac{5}{8}} = x^{\frac{8}{8}} = x^1$$