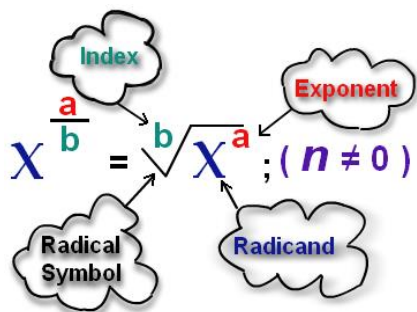


## Extra Practice for Unit 3 Quiz 1

**Remember:** An expression containing a rational exponent can be written in an equivalent radical form.



**Part A:** Rewrite each of the following expressions in radical form.

$x^{\frac{3}{2}}$	$(-27)^{\frac{2}{3}}$	$(16x)^{\frac{5}{4}}$	$y^{-9/8}$
$2a^{\frac{1}{4}}$	$4^{-\frac{7}{2}}$	$(3^{\frac{2}{5}})^5$	$x^{1.2}$

**Part B:** Rewrite these radical expressions as expressions with rational exponents.

$\sqrt[5]{2}$	$(\sqrt[3]{6})^5$	$(\sqrt{5})^7$
$\sqrt[7]{}$	$(\sqrt[4]{9^3})$	$(\sqrt[7]{3x})^2$

**Part C:** Write your final answer as a simplified radical. (Hint: if you convert the radical expressions into expressions with rational exponents, you CAN multiply or divide them! Give it a try ☺)

1.  $\frac{12\sqrt[3]{y}}{4\sqrt{y}}$

2.  $\left(\frac{\sqrt[3]{a^2}}{\sqrt{b}}\right)^{-6}$

3.  $(2\sqrt[4]{a})^3 \cdot \sqrt{a^3}$

4.  $\sqrt[4]{x^{12}} \cdot \sqrt{y^{-2}}$

5.  $\frac{\sqrt{64x^3}}{\sqrt[3]{512x^9}}$

6.  $\sqrt[4]{625x^8}$

7.  $\sqrt[7]{x^2} \cdot \sqrt[14]{x^3}$

8.  $\frac{1}{\sqrt[3]{-27x^9}}$

9.  $(\sqrt{x} \cdot \sqrt[3]{y^2})^{-6}$

**Part D:** Simplify and rewrite without negative exponents.

1)  $6 \cdot c^3 \cdot d^{-2}$

2)  $6x^4x^{-10}$

3)  $(2^0 \cdot x^{-3})^4$

4)  $\frac{a^{12}b^{-3}}{a^5b^5}$

5)  $\left(\frac{5x^{13}y^5z^2}{3 \cdot 5^2}\right)^0$

6)  $(g^3 \cdot g^{-2})^4$

7)  $\left(\frac{4c^{-5}}{8d^0}\right)^3$

8)  $\left(\frac{x^{-8}}{y^{11}}\right)^{-2}$

9)  $\frac{(2x^3) \cdot (x^4)^2}{8x^{11}}$

10)  $(2x^2y^3)^5$

11)  $\frac{-3x^2}{y^6}$

12)  $(3x)^{-2}(x^2)$

13)  $\frac{2xy^2}{8x^2y}$

14)  $3^{-2}2^4x^3x$

15)  $(-2xy)^4$

**Part E:** Graph each of the functions on graph paper. State the domain and range in interval notation. Then describe how the function changed from the parent graph.

1. $y = \sqrt{x+4}$	2. $y = -\sqrt{x-3}$	3. $y = 3 + \sqrt{x+3}$
4. $y = -\sqrt{x-1} - 3$	5. $y = \sqrt{x}$	6. $y = \sqrt{x-2} + 1$
7. $y = -\sqrt[3]{x}$	8. $y = 3\sqrt[3]{x+5}$	9. $y = \sqrt[3]{x} - 2$
10. $y = -\sqrt[3]{x+3}$	11. $y = \sqrt[3]{x+2} + 5$	12. $y = \sqrt[3]{x+2} + 5$

13. How would each of the following graphs be transformed in relation to the parent graph?

a)  $y = \sqrt[3]{x-3}$  \_\_\_\_\_

b)  $y = \sqrt[3]{x+4}$  \_\_\_\_\_

c)  $y = -3\sqrt[3]{x}$  \_\_\_\_\_

d)  $y = \sqrt[3]{x} + 5$  \_\_\_\_\_

e)  $y = \sqrt[3]{x} - 6$  \_\_\_\_\_

f)  $y = 3\sqrt[3]{x-2} + 7$  \_\_\_\_\_