

1. a) $\left(\frac{4}{5}\right)^{-2}$ b) $(-1024)^{0.8}$ c) $(27/125)^{4/3}$
- d) 4^{-2} e) $81^{-3/2}$ f) $216^{1/3}$

2. **Arrange Greatest to Least**

$(\sqrt{4})^{-3}$, $4^{1/2}$, $(\sqrt{4})^3$, 4^{-2} , $(\sqrt[5]{4})^8$

/

$$\begin{aligned}
 \text{a) } & \left(\frac{4}{5}\right)^{-2} \\
 & \left(\frac{5}{4}\right)^2 \\
 & = \frac{25}{16}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & (-1024)^{0.8} \quad \begin{array}{l} \uparrow 8 \div 2 \\ \uparrow 10 \div 2 \\ \leftarrow \text{exp} \\ \frac{4}{5} \leftarrow \text{root} \end{array} \\
 & \begin{array}{l} \text{opp.} \uparrow \\ \left(\sqrt[5]{-1024}\right)^4 \\ (-4)^4 \rightarrow \text{even} \\ = +256 \end{array} \\
 \text{c) } & (27/125)^{4/3} \quad \begin{array}{l} \downarrow \text{exp} \\ \uparrow \text{root} \end{array} \\
 & \begin{array}{l} \left(\sqrt[3]{\frac{27}{125}}\right)^4 \\ \left(\frac{3}{5}\right)^4 \\ \frac{3^4}{5^4} \\ = \frac{81}{625} \end{array}
 \end{aligned}$$

$$\begin{aligned} \text{d) } & \frac{4^{-2}}{1} \\ & \frac{1}{4^2} \\ & = \frac{1}{16} \end{aligned}$$

$$\begin{aligned} \text{e) } & \frac{81^{-3/2}}{1} \\ & \frac{1}{81^{3/2}} \leftarrow \begin{array}{l} \text{exp} \\ \text{root} \end{array} \\ & \left(\sqrt{81} \right)^3 \\ & \frac{1}{9^3} \\ & = \frac{1}{729} \end{aligned}$$

$$\begin{aligned} \text{f) } & 216^{1/3} \leftarrow \begin{array}{l} \text{exp} \\ \text{root} \end{array} \\ & \sqrt[3]{216} \\ & = 6 \end{aligned}$$

Test2. **Arrange Greatest to Least**

$$(\sqrt[2]{4})^{-3}, 4^{1/2}, (\sqrt[3]{4})^3, 4^{-2}, (\sqrt[5]{4})^8$$

X $\frac{\text{exp}}{\text{root}}$

$$\begin{array}{cccccc}
 \cancel{-3} & \cancel{3} & \cancel{3} & -2 & \cancel{8} & \\
 4^{-3/2} & 4^{1/2} & 4^{3/2} & 4^{-2} & 4^{8/5} & \\
 (\sqrt[5]{4})^8 & (\sqrt{4})^3 & 4^{1/2} & (\sqrt{4})^{-3} & 4^{-2} &
 \end{array}$$