

$$A = s^2$$

$$(a) s = 5$$

$$A = (5)^2$$

$$= 25$$

2 is understood

$$(b) A = 25$$

$$25 = s^2$$

$$\pm (25)^{\frac{1}{2}} = (s^2)^{\frac{1}{2}}$$

$$\sqrt{\quad} \iff (\quad)^{\frac{1}{2}}$$

$$\sqrt[3]{\quad} = (\quad)^{\frac{1}{3}}$$

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$$32^{\frac{1}{5}} = \sqrt[5]{32}$$

$$= 2$$

$$(2^5)^{\frac{1}{3}} = 2^{\frac{5}{3}}$$

$$= \sqrt[3]{2^5}$$

$$= (\sqrt[3]{2})^5$$

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Ex. 1

(a) $\sqrt[3]{2}$ (b) $\sqrt[5]{7}$ (c) $(\sqrt[3]{2})^5$

(d) $(\sqrt[7]{10})^2 = \sqrt[7]{10^2}$
 $= \sqrt[3]{2^5}$

Ex. 2

(a) $11^{\frac{1}{4}}$ (b) $7^{\frac{2}{3}}$ (c) $3^{\frac{5}{2}}$

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p. 16 # 5(m)

$(-0.0016)^{\frac{1}{4}}$ DNE

$5(g) \left((\sqrt{125})^4 \right)^{\frac{1}{6}}$

$= \left((125^{\frac{1}{2}})^4 \right)^{\frac{1}{6}}$

$= (125)^{\frac{4}{12}}$

$= 125^{\frac{1}{3}}$

$= \sqrt[3]{125}$

$= 5$

$\sqrt[x]{y}$

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$$6(k) \quad (\sqrt{x^3})(\sqrt[3]{x})$$

$$= (x^{\frac{3}{2}})(x^{\frac{1}{3}})$$

$$= x^{\frac{3}{2} + \frac{1}{3}} \longrightarrow \frac{3}{2} + \frac{1}{3} = \frac{9}{6} + \frac{2}{6}$$

$$= x^{\frac{9}{6} + \frac{2}{6}}$$

$$= x^{\frac{11}{6}}$$

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$$5(o) \quad (625^{-1})^{-\frac{1}{4}}$$

$$= 625^{\frac{1}{4}}$$

$$= \sqrt[4]{625}$$

$$= 5$$

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$$\begin{aligned}
6 \text{ (c)} & \sqrt{\sqrt{81x^8}} \\
&= \left(\sqrt{81x^8}\right)^{\frac{1}{2}} \\
&= \left(\underline{81x^8}^{\frac{1}{2}}\right)^{\frac{1}{2}} \\
&= \left(81^{\frac{1}{2}} x^8^{\frac{1}{2}}\right)^{\frac{1}{2}} \\
&= \left(9 x^4\right)^{\frac{1}{2}} \\
&= (9)^{\frac{1}{2}} (x^4)^{\frac{1}{2}} \\
&= 3x^2
\end{aligned}$$

$$(ab)^x = a^x b^x$$

$$\begin{aligned}
&= \left(81^{\frac{1}{2}}\right)^{\frac{1}{2}} \left(x^8^{\frac{1}{2}}\right)^{\frac{1}{2}} \\
&= 3x^2
\end{aligned}$$

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