

Name:

Fractional Exponents and Radicals Worksheet

Write each expression in radical form.

1 $\left(\frac{x}{4}\right)^{-\frac{3}{4}}$

2 $(3x)^{\frac{1}{8}}$

3 $(10p)^{\frac{3}{2}}$

4 $(625)^{\frac{8}{9}}$

5 $(5x)^{-\frac{1}{6}}$

6 $(256p)^{-\frac{7}{8}}$

Write each expression in exponential form.

1 $\sqrt[4]{2^3}$

2 $\sqrt[3]{7^{-1}}$

3 $\sqrt[4]{5x}$

4 $(\sqrt[3]{x})^4$

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

6 $\frac{1}{\sqrt[3]{5}}$

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Answers

$$1 \quad \left(\frac{x}{4}\right)^{-\frac{3}{4}} = \sqrt[4]{\left(\frac{4}{x}\right)^3}$$

$$2 \quad (3x)^{\frac{1}{8}} = \sqrt[8]{3x}$$

$$3 \quad (10p)^{\frac{3}{2}} = \sqrt{(10p)^3}$$

$$4 \quad (625)^{\frac{8}{9}} = \sqrt[9]{625^8}$$

$$5 \quad (5x)^{-\frac{1}{6}} = \frac{1}{\sqrt[6]{5x}}$$

$$6 \quad (256p)^{-\frac{7}{8}} = \frac{1}{\sqrt[8]{(256p)^7}}$$

$$1 \quad \sqrt[4]{2^3} = 2^{\frac{3}{4}}$$

$$2 \quad \sqrt[3]{7^{-1}} = 7^{-\frac{1}{3}}$$

$$3 \quad \sqrt[4]{5x} = (5x)^{\frac{1}{4}}$$

$$4 \quad (\sqrt[3]{x})^4 = x^{\frac{4}{3}}$$

$$5 \quad \sqrt[3]{(6x)^4} = (6x)^{\frac{4}{3}}$$

$$6 \quad \frac{1}{\sqrt[3]{5}} = 5^{-\frac{1}{3}}$$