

Fractional Exponents

$$8^{2/3}$$

power
root

$$\sqrt[3]{8^2}$$

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

3, 8, 45, 48, 20

$$3. \quad 32^{2/5} = \sqrt[5]{32^2} = 2^2 = 4$$

$$8. \quad \left(\frac{4}{81}\right)^{3/2} = \left(\sqrt{\frac{4}{81}}\right)^3 = \left(\frac{2}{9}\right)^3 = \frac{8}{729}$$

$$20. \quad \left(\frac{9}{16}\right)^{1/2} = \sqrt{\frac{9}{16}} = \frac{3}{4}$$

$$45. \quad 32^{1/5} = \sqrt[5]{32} = 2$$

$$48. \quad 64^{1/3} = \sqrt[3]{64} = 4$$

HW Assessment

3/23

28.

$25^{3/2}$

Express as
a radical
then
simplify

$$\sqrt{36} = 6$$

$$\sqrt{x^2} = \sqrt{36} \quad \text{but } (-6)^2$$
$$x = 6 \quad \text{is also } 36$$

there are two solutions

$$x = \pm 6$$

$$x^2 = 49$$

$$x = \pm 7$$

$$x = 7, -7$$

$$\frac{5x^2}{5} = \frac{180}{5}$$

$$x^2 = 36$$

$$x = \pm 6$$

$$\frac{4x^2}{4} = \frac{49}{4}$$

$$\sqrt{x^2} = \sqrt{\frac{49}{4}}$$

$$x = \pm \frac{7}{2}$$

$$x^2 - 5 = 0$$

$$\begin{array}{c} +5 \\ \sqrt{x^2} = \sqrt{5} \end{array}$$

$$x = \pm \sqrt{5}$$

$$x^2 + 16 = 0$$

$$x^2 = -16$$

\emptyset

your turn

$$81x^2 - 25 = 0$$

$$81x^2 + 25 = 0$$