5.4.15

a. Write the exponential expressions $x^{\frac{3}{5}}$ and $y^{-2.5}$ in radical form.

$\sqrt[5]{x^3}$ $\qquad$ $\sqrt{\left(\frac{1}{y}\right)^5}$

b. Write the radical expressions $\sqrt{a^3}$ and $\left(\sqrt[5]{b}\right)^2$ in exponential form.

Index: 2 $\qquad$ Radical is a^3

$B^{\frac{2}{5}}$ $\qquad$ $a^{\frac{3}{2}}$

Classwork

p. 388

11-25 odd

31-37 odd

(15) $t^{-\frac{3}{4}}$ $\frac{1}{t^{\frac{3}{4}}}$ $\sqrt[4]{\frac{1}{t^3}}$

(17) $y^{1.2} = y^{\frac{6}{5}} = \sqrt[5]{y^6}$

$\frac{1.2}{1} \cdot \frac{10}{10} = \frac{12}{10} = \frac{6}{5}$

(19) $\sqrt{7x^3}$ $7^{\frac{1}{2}} x^{\frac{3}{2}}$

(20) $\sqrt{(7x)^3}$ $(7x)^{\frac{3}{2}}$

(25) $\sqrt[3]{(5xy)^6} = (5xy)^{\frac{6}{3}} = (5xy)^2$

$25x^2y^2$

Solving Square Root Equations

Solve $2 + \sqrt{3x - 2} = 6$.

$-2 \qquad -2$

$(\sqrt{3x-2})^2 = (4)^2$

$3x - 2 = 16$

$+2 \quad +2$

$\frac{3x}{3} = \frac{18}{3}$

$x = 6$

Solve $\sqrt{5x + 1} - 6 = 0$.

$+6 \qquad +6$

$\sqrt{(5x+1)}^2 = (6)^2$

$5x + 1 = 36$

$-1 \quad -1$

$\frac{5x}{5} = \frac{35}{5}$

$x = 7$

Solving Radical Equations With Rational Exponents

Solve $2(x-2)^{\frac{2}{3}} = 50.$

$\frac{2}{2} \quad \frac{2}{2}$

$\left((x-2)^{\frac{2}{3}}\right)^{\frac{3}{2}} = (25)^{\frac{3}{2}}$

$x-2 = 25^{\frac{3}{2}}$

$x-2 = 125$

$+2 \quad +2$

$\boxed{x = 127}$