Math 2201 Simplifying Variable Radicals

Sec 4.4 Worksheet Answer Key

1. State the restrictions on the variables.

a). $\sqrt{x^5\, y^{12}}$

$x \geq 0, y \in R$

b). $5\sqrt{x-7}$

$x \geq 7$

c). $\frac{\sqrt{x-7}}{3}$

$x \geq 7$

d). $\frac{-5}{\sqrt{x+4}}$

$x > -4$

2. Simplify. Then state the restrictions.

a). $3\sqrt{12x^5y^{12}}$

$6x^2y^6\sqrt{3x}$

$x \geq 0, y \in R$

b). $5\sqrt{50x^{10}y^{19}}$

$25x^5y^9\sqrt{2y}$

$x \in R, y \geq 0$

c). $-2\sqrt{120x^{25}y^{16}}$

$-4x^{12}y^8\sqrt{30x}$

$x \geq 0, y \in R$

d). $5\sqrt{24x} + \sqrt{6x}$

$11\sqrt{6x}\ ,\ x \geq 0$

e). $-\sqrt{75x} - \sqrt{300x}$

$-15\sqrt{3x}\ ,\ x \geq 0$

f). $4\sqrt{45x} - 7\sqrt{900x}$

$12\sqrt{5x} - 210\sqrt{x}$

$x \geq 0$

g). $12\sqrt{2x^5} + \sqrt{32x^5}$

$16x^2\sqrt{2x}$

$x \geq 0$

h). $-8\sqrt{2x^6} + \sqrt{8x^6}$

$-6x^3\sqrt{2}$

$x \in R$

i). $4\sqrt{28x^{11}} - \sqrt{63x^{11}}$

$5x^5\sqrt{7x}$

$x \geq 0$

j). $-2\sqrt{x^3} - \sqrt{25x^5}$

$-2x\sqrt{x} - 5x^2\sqrt{x}$

$x \geq 0$

k). $3\sqrt{10x^5y^8} + \sqrt{40x^5y^{20}}$

$3x^2y^4\sqrt{10x} + 2x^2y^{10}\sqrt{10x}$

$x \geq 0, \ y \in R$