Unit 6.4 Simplifying Radical Expressions with Variables

1. Simplify the radical

   a. $\sqrt{x^6} =$ _____

   b. $\sqrt{a^{12}} =$ _____

   c. $\sqrt{y^{32}} =$ _____

   d. $\sqrt{4y^2} =$ _____

   e. $\sqrt{36x^{16}} =$ _____

   f. $\sqrt{121b^{44}} =$ _____

2. Simplify the radical

a. $\sqrt{108x^7}$ = _____

b. $\sqrt{196x^5}$ = _____

c. $\sqrt{294x^{11}}$ = _____

d. $\sqrt{525y^{33}}$ = _____

3. Find the n^{th} root of the polynomial

a. $\sqrt[3]{27x^6}$ = _____

b. $\sqrt[4]{16y^{32}}$ = _____

c. $\sqrt[6]{64a^{18}}$ = _____

d. $\sqrt[5]{96x^6}$ = _____

e. $\sqrt[3]{108x^6}$ = _____

f. $\sqrt[4]{144y^9}$ = _____

g. $\sqrt[7]{10935w^{81}}$ = _____

4. Simplify the radical, write in simplest terms

a. $\sqrt{99x^4y^9}$ = _____

b. $\sqrt{63ab^7}$ = _____

c. $\sqrt{252x^{12}y^{15}}$ = _____

d. $\sqrt{150x^{3}y^{5}}$ = _____

e. $\sqrt[3]{72x^{11}w^{9}}$ = _____

f. $\sqrt[3]{54t^{14}y^{3}}$ = _____

5. Simplify the radical expression by using absolute value signs where required

a. $\sqrt{x^{6}y^{8}}$ = _____

b. $\sqrt[4]{x^{16}y^{28}}$ = _____

c. $\sqrt[2]{36x^2y^6} =$ _____

d. $\sqrt[4]{81x^{12}y^8} =$ _____