Algebra 2 Chapter 7 Review Fall 2015

1. Simplify. Use absolute value symbols as needed.

a) $\sqrt{24a^6b^{13}c^{23}}$ b) $\sqrt[3]{-8m^{14}n^{21}}$ c) $\sqrt[6]{g^{33}h^{49}}$

2. Simplify each. Assume that all variables are positive numbers.

a) $5\sqrt{7}+3\sqrt{7}-2\sqrt{63}$ b) $\sqrt{10x^9y^7}\cdot\sqrt{15xy^{10}}$ c) $\dfrac{\sqrt[3]{48a^{15}b^4}}{\sqrt[3]{6a^2b^{10}}}$ d) $(7+3\sqrt{3})(5-4\sqrt{3})$

e) $(8-\sqrt{7})(8+\sqrt{7})$ f) $\dfrac{\sqrt{21m^{17}n^5}}{\sqrt{12m^6n^{13}}}$ g) $\sqrt[3]{4a^7b}\cdot\sqrt[3]{14a^9b^{11}}$

3. Rationalize each denominator and simplify. Assume all variables are positive numbers.

a) $\dfrac{12Q^4R^2}{\sqrt{3Q^5R^3}}$ b) $\dfrac{14a^2b}{\sqrt[3]{2a^{10}b^8}}$ c) $\dfrac{8}{4+\sqrt{6}}$ d) $\dfrac{14m^3}{\sqrt[6]{6m^2n^{13}}}$

4. Rewrite in radical form. a) $a^{\frac{2}{3}}$ b) $6m^{\frac{9}{2}}$

5. Rewrite in exponential form. a) $\sqrt[8]{e^5}$ b) $\sqrt[3]{5c}$

6. Simplify each. Assume that all variables are positive numbers.

a) $(5w^{\frac{-7}{2}})^4$ b) $(8m^9)^{\frac{-2}{3}}$

7. Solve each radical equation. Check for extraneous solutions.

a) $\sqrt[3]{2x-7}=\sqrt[3]{x+4}$ b) $5\sqrt{x-7}-4=6$ c) $3(x+1)^{\frac{3}{5}}=24$

d) $\sqrt{3x-2}-x=0$ e) $\sqrt{2x+19}-2=x$

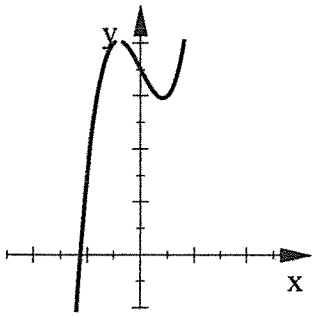
8. Write the equation of the inverse relation for each function.

a) $f(x)=\dfrac{2x^2-3}{5}$ b) $y=-3x+1$ c) $y=-7\sqrt[5]{x-4}+6$ d) $y=9\left(\dfrac{5x-1}{8}\right)^3$

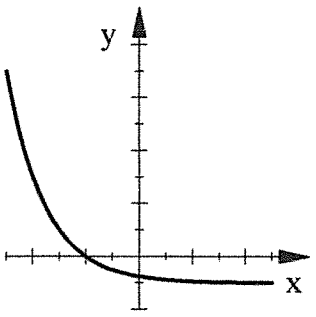
9. Tell if the inverse relation of each is a function or not.

a) $y=-\dfrac{2}{3}x+7$ b) $y=(x-1)^4+5$

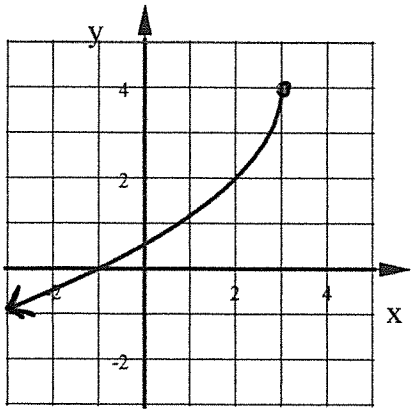
c) Use the graph below

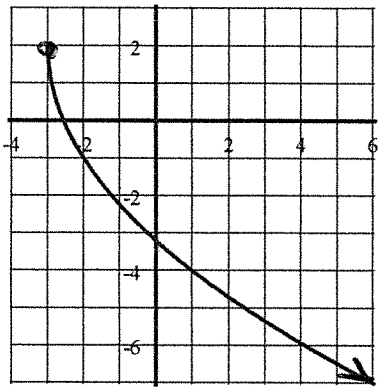


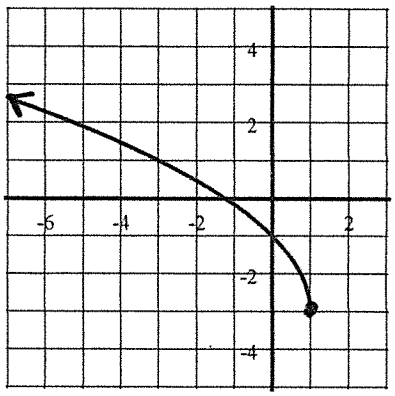
d) Use the graph below



10. Write the equation of each square root function.

a) 

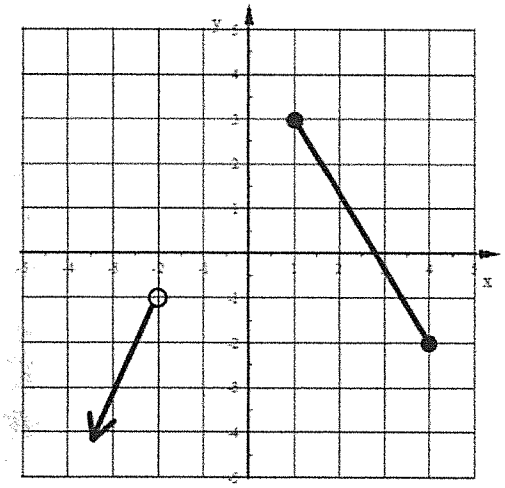
b) 

c) 

11. Graph each square root function.

a) $y = -\sqrt{x} + 2$ b) $y = 2\sqrt{x+4} - 3$ c) $y = -\sqrt{-(x-3)} + 1$ d) $y = 3\sqrt{-(x-2)}$

12. State the Domain and Range of the inverse relation to the graph shown below.



Algebra 2 Chapter Review ANSWERS Fall 2015

1. a) $2|a^3| \cdot b^6 \cdot |c^{11}| \cdot \sqrt{6bc}$ b) $-2m^4n^7\sqrt[3]{m^2}$ c) $|g^5| \cdot h^8\sqrt{g^3h}$

2 a) $2\sqrt{7}$ b) $5x^5y^8\sqrt{6y}$ c) $\frac{2a^4\sqrt[3]{a}}{b^2}$ d) $-1-13\sqrt{3}$ e) 57

f) $\frac{m^5\sqrt{7m}}{2n^4}$ g) $2a^5b^4\sqrt[3]{7a}$

3. a) $4Q\sqrt{3QR}$ b) $\frac{7\sqrt[3]{4a^2b}}{a^2b^2}$ c) $\frac{16-4\sqrt{6}}{5}$ d) $\frac{7m^2\sqrt[6]{6^5m^4n^5}}{3n^3}$

4. a) $\sqrt[3]{a^2}$ *or* $(\sqrt[3]{a})^2$ b) $6\sqrt{m^9}$ *or* $6(\sqrt{m})^9$

5. a) $e^{\frac{5}{8}}$ b) $(5c)^{\frac{1}{3}}$ 6. a) $\frac{625}{w^{14}}$ b) $\frac{1}{4m^6}$

7. a) $x = 11$ b) $x = 11$ c) $x = 31$ d) $x = 1,2$ e) $x = 3$

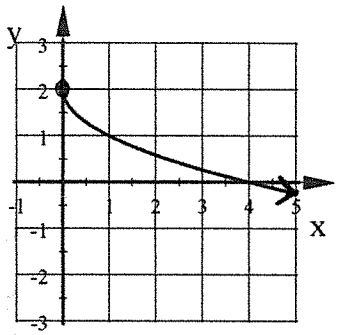
8. a) $f^{-1}(x) = \pm\sqrt{\frac{5x+3}{2}}$ b) $f^{-1}(x) = \frac{x-1}{-3}$

c) $f^{-1}(x) = \left(\frac{x-6}{-7}\right)^5 + 4$ d) $f^{-1}(x) = \frac{8 \cdot \sqrt[3]{\frac{x}{9}} + 1}{5}$

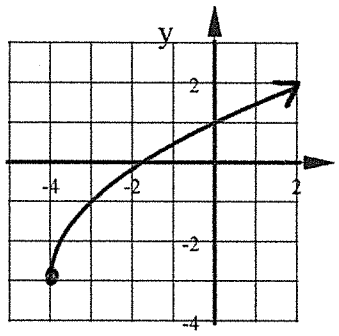
9. a)Yes b) No c) No d) Yes

10. a) $y = -2\sqrt{-(x-3)} + 4$ b) $y = -3\sqrt{x+3} + 2$ c) $y = 2\sqrt{-(x-1)} - 3$

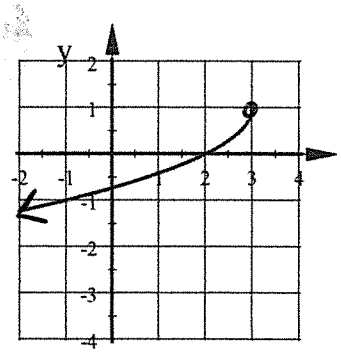
11. a)



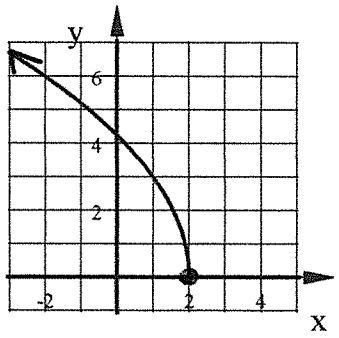
b)



c)



d)



12. Domain of the inverse: $x \leq 3$
Range of the inverse: $y < -2, 1 \leq y \leq 4$