

Alg 2 Chapter 5 Review Spring 2020

Give answers in simplified radical form unless noted otherwise. Assume all variables are positive quantities unless noted otherwise. Make sure denominators are rationalized unless noted otherwise.

1. Simplify. Use absolute value symbols as needed.

a) $\sqrt{68a^6b^{13}c^{23}}$ b) $\sqrt[3]{-24m^{14}n^{21}}$ c) $\sqrt[6]{g^{33}h^{49}}$

2. Simplify each.

a) $5\sqrt{28} + 3\sqrt{175} - 2\sqrt{63}$ b) $\sqrt{10x^9y^7} \cdot \sqrt{15xy^{10}}$ c) $\frac{\sqrt[3]{96a^{15}b^4}}{\sqrt[3]{6a^2b^{10}}}$
 d) $(7 + 3\sqrt{3})(5 - 4\sqrt{3})$ e) $(8 - \sqrt{7})(8 + \sqrt{7})$ f) $\frac{\sqrt{21m^{17}n^5}}{\sqrt{12m^6n^{13}}}$ g) $\sqrt[3]{4a^7b} \cdot \sqrt[3]{14a^9b^{11}}$

3. Rationalize each denominator and simplify.

a) $\frac{12Q^4R^2}{\sqrt{3Q^5R^3}}$ b) $\frac{14a^2b}{\sqrt[3]{4a^{10}b^8}}$ c) $\frac{8}{4 + \sqrt{6}}$ d) $\frac{14m^3}{\sqrt{18m^8n^{13}}}$

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

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

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

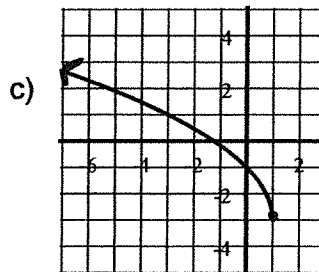
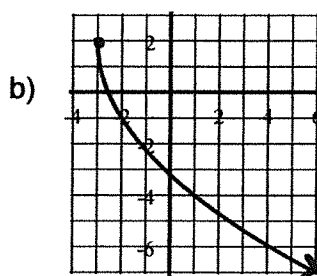
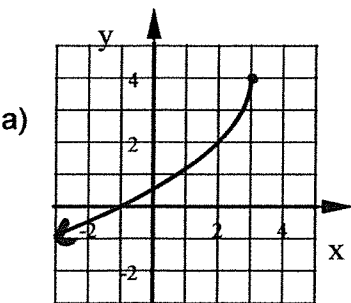
a) $(5w^{\frac{-7}{2}})^4$ b) $(8m^9)^{\frac{-2}{3}}$

7. Solve each 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 each square root function.



9. Graph each square root function.

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

10. Find the Domain and Range of each Square Root function in problem #9.

Use these functions for the 11-16:

$$f(x) = x - 3$$

$$g(x) = 4x + 7$$

$$h(x) = \frac{2x-1}{x+6}$$

$$k(x) = x^2 - 2x$$

11. Find $g(h(2))$

12. Find $f(k(-5))$

13. Find $k(h(7))$

14. Find $k(f(x))$. Simplify as much as possible.

15. Find $h(g(x))$. Simplify as much as possible.

16. Find $g(h(x))$. Simplify as much as possible.

Alg 2

Chapter 5 Review

ANSWERS

Spring 2020

1. a) $2|a^3| \cdot b^6 \cdot |c^{11}| \cdot \sqrt{17bc}$

b) $-2m^4n^7\sqrt[3]{3m^2}$

c) $|g^5| \cdot h^8\sqrt[6]{g^3h}$

2 a) $19\sqrt{7}$

b) $5x^5y^8\sqrt{6y}$

c) $\frac{2a^4\sqrt[3]{2a}}{b^2}$

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) $\frac{7\sqrt[3]{2a^2b}}{a^2b^2}$

c) $\frac{16-4\sqrt{6}}{5}$

d) $\frac{7\sqrt{2n}}{3mn^7}$

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

b) $y = -3\sqrt{x+3} + 2$

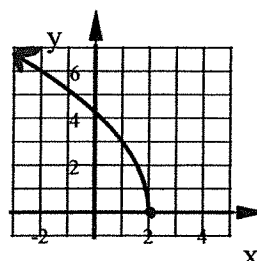
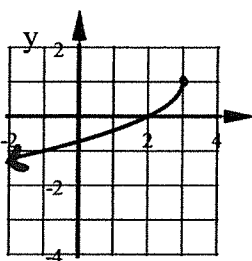
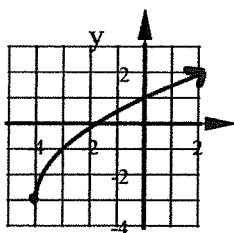
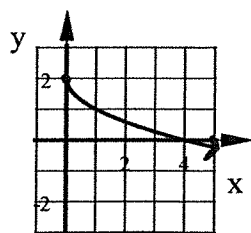
c) $y = 2\sqrt{-(x-1)} - 3$

9. a)

b)

c)

d)



10. a) D: $[0, \infty)$ R: $(-\infty, 2]$

b) D: $[-4, \infty)$ R: $[-3, \infty)$

d) c) D: $(-\infty, 3]$ R: $(-\infty, 1]$

D: $(-\infty, 2]$ R: $[0, \infty)$

11. $\frac{17}{2} = 8.5$

12. 32

13. -1

14. $x^2 - 8x + 15$

15. $\frac{8x+13}{4x+13}$

16. $\frac{15x+38}{x+6}$