

Simplifying Radicals Key

Name: _____

Simplify the radicals and write your answers in EXACT form.

1. $2\sqrt{27}$

2. $\sqrt{12}$

3. $3\sqrt{8}$

$6\sqrt{3}$

$2\sqrt{3}$

$6\sqrt{2}$

4. $5\sqrt{44}$

5. $2\sqrt{36a^4b}$

6. $\sqrt[3]{8x^3y^2}$

$10\sqrt{11}$

$12a^2\sqrt{b}$

$2x\sqrt[3]{y^2}$

7. $\sqrt{a^3b^4}$

8. $2\sqrt[3]{x^5y^6z^{10}}$

9. $\sqrt[4]{32x^5y^{11}}$

$ab^2\sqrt{a}$

$6xy^2z^3\sqrt[3]{x^2z}$

$2xy^2\sqrt[4]{2xy^3}$

10. $\sqrt{\frac{49}{y^2}}$

11. $\sqrt{\frac{25y^3}{x^4}}$

12. $\frac{3}{\sqrt{6}}$

$\frac{7}{y}$

$\frac{5y\sqrt{y}}{x^2}$

$\frac{\sqrt{6}}{2}$

13. $\frac{6+\sqrt{45}}{3}$

14. $\frac{10+\sqrt{50}}{5}$

15. $\frac{6+\sqrt{12}}{2}$

$2+\sqrt{5}$

$2+\sqrt{2}$

$3+\sqrt{3}$

16. $2\sqrt{50ab^5}$

17. $-\sqrt{49x^2}$

18. $\sqrt{80x^3}$

$10b^2\sqrt{2ab}$

$-7x$

$4x\sqrt{5x}$

19. True or False.

a. $\frac{\sqrt{15}}{3} = \sqrt{3}$	False	b. $\sqrt[3]{9} = 3$	False
c. $\sqrt[6]{16} = \sqrt[3]{4}$	True	d. $\frac{2+\sqrt{6}}{2} = 1 + \sqrt{6}$	False
e. $\sqrt{4} = \sqrt{2}$	False	f. $\sqrt{12} = 2\sqrt{6}$	False
g. $\sqrt[3]{-27} = -3$	True	h. $\sqrt{-25} = -5$	False
i. $\sqrt{283} = 17$	False	j. $\sqrt{18} = 9\sqrt{2}$	False
k. $\frac{6}{\sqrt{5}} = \frac{\sqrt{30}}{5}$	False	l. $\frac{8}{\sqrt{2}} = 4\sqrt{2}$	True

Simplify.

20. $5\sqrt{7} + \sqrt{7}$

$6\sqrt{7}$

21. $\sqrt{3} + \sqrt{27}$

$4\sqrt{3}$

22. $2\sqrt{3} - 4\sqrt{18}$

$2\sqrt{3} - 12\sqrt{2}$

23. $\sqrt{2}(\sqrt{8})$

4

24. $3\sqrt{2}(-1\sqrt{5} + 3\sqrt{20})$

$15\sqrt{10}$

25. $2\sqrt{2}(\sqrt{5} + 9\sqrt{2})$

$2\sqrt{10} + 36$