Name:_____ Class:_____ Date: Key

6-4: nth Roots (Practice)

Simplify.

1. $\sqrt{0.81}$ $= 0.9$

$0.9 \cdot 0.9 = 0.81$

2. $-\sqrt{324}$ $= -18$

$18^2 = 324$

3. $-\sqrt[4]{256}$ $= -4$

$4^4 = 256$

4. $\sqrt[6]{64}$ $= 2$

$2^6 = 64$

5. $\sqrt[3]{-64}$ $= -4$

$(-4)^3 = -64$

6. $\sqrt[5]{-32}$ $= -2$

$(-2)^5 = 32$

7. $-\sqrt[4]{1296}$ $6^4 = 1296$

-6

8. $\sqrt[5]{\frac{-1024}{243}}$ $\frac{\sqrt[5]{-1024}}{\sqrt[5]{243}} = \frac{-4}{3}$

$3^5 = 243$

$4^5 = 1024$

9. $\sqrt[5]{243x^{10}}$ $= 3x^2$

$3^5 = 243$

$\sqrt[5]{x^{10}} = x^2$

10. $\sqrt{-(14a)^2}$

No real solution – even root of negative term

11. $\sqrt[3]{-64r^2w^{15}}$ =

Omit

12. $\sqrt[2]{(2x)^8}$ $= (2x)^4$

$= \sqrt{(2x)^4 \cdot (2x)^4}$

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6-4: nth Roots (Practice)

13. $-\sqrt[4]{625s^8}$ $= -5s^2$

$5^4 = 625$

$\sqrt[4]{s^8} = s^2$

14. $\sqrt[3]{216p^3q^9}$ $= 6pq^3$

$6^3 = 216$ $\quad \sqrt[3]{p^3} = p$ $\quad \sqrt[3]{q^9} = q^3$

15. $\sqrt[3]{-27x^9y^{12}}$ $= -3x^3y^4$

$(-3)^3 = -27$ $\quad \sqrt[3]{x^9} = x^3$ $\quad \sqrt[3]{y^{12}} = y^4$

16. $\sqrt[5]{-32x^5y^{10}}$ $= -2xy^2$

$(-2)^5 = -32$ $\quad \sqrt[5]{y^{10}} = y^2$

$\sqrt[5]{x^5} = x$

17. $\sqrt[3]{(2x+1)^3}$ $= (2x+1)$

18. $\sqrt[4]{(x-5)^8}$ $= (x-5)^2$

Use a calculator to approximate each value to three decimal places.

19. $\sqrt{7.8}$ $\quad 2.793$

20. $-\sqrt{89}$ $\quad -9.434$

21. $\sqrt[3]{25}$

22. $\sqrt[3]{-4}$

23. $\sqrt[4]{1.1}$

24. $\sqrt[5]{-0.1}$

omit