

Name: _____ Date: _____ Period: _____

5.2 Properties of Rational Exponents & Radicals CYU

Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Simplify rational exponents using properties		1 - 5	
Simplify radical expressions using properties		6 - 9	
Simplifying radicals to simplest form	10 - 13	18 - 21	22 - 30
Rationalizing the denominator		14 - 17	
Combining like terms		18 - 21	

Use the properties of rational exponents to simplify the expression.

1. $(9^2)^{\frac{1}{3}}$

2. $\frac{6}{\frac{1}{6^4}}$

3. $\left(\frac{8^4}{10^4}\right)^{-\frac{1}{4}}$

4. $\left(3^{-\frac{2}{3}} \cdot 3^{\frac{1}{3}}\right)^{-1}$

5. $\frac{2^{\frac{2}{3}} \cdot 16^{\frac{2}{3}}}{4^3}$

Use the properties of radicals to simplify the expression.

6. $\sqrt{2} \cdot \sqrt{72}$

7. $\sqrt[4]{6} \cdot \sqrt[4]{8}$

8. $\frac{\sqrt[5]{486}}{\sqrt[5]{2}}$

9. $\frac{\sqrt[3]{6} \cdot \sqrt[3]{72}}{\sqrt[3]{2}}$

Write the expression in simplest form.

10. $\sqrt[4]{567}$

11. $\frac{\sqrt[3]{5}}{\sqrt[3]{4}}$

12. $\sqrt{\frac{3}{8}}$

13. $\sqrt[3]{\frac{64}{49}}$

Write the expression in simplest form.

14. $\frac{1}{1+\sqrt{3}}$

15. $\frac{5}{3-\sqrt{2}}$

16. $\frac{9}{\sqrt{3}+\sqrt{7}}$

17. $\frac{\sqrt{7}}{\sqrt{10}-\sqrt{2}}$

Simplify the expression.

18. $9\sqrt[3]{11} + 3\sqrt[3]{11}$

19. $3\left(11^{\frac{1}{4}}\right) + 9\left(11^{\frac{1}{4}}\right)$

20. $5\sqrt{12} - 19\sqrt{3}$

21. $\sqrt[5]{224} + 3\sqrt[5]{7}$

22. $\sqrt[4]{81y^8}$

23. $\sqrt[3]{64r^3t^6}$

24. $\sqrt[5]{\frac{m^{10}}{n^5}}$

25. $\sqrt[6]{\frac{g^6h}{h^7}}$

26. $12\sqrt[3]{y} + 9\sqrt[3]{y}$

27. $3x^{\frac{7}{2}} - 5x^{\frac{7}{2}}$

28. $7\sqrt[3]{m^7} + 3m^{\frac{7}{3}}$

29. $\left(p^{\frac{1}{2}} \cdot p^{\frac{1}{4}}\right) - \sqrt[4]{16p^3}$

30. $\sqrt[4]{16w^{10}} + 2w\sqrt[4]{16p^3}$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

