

Name _____ Date _____

5.1 Practice WS

SHOW ALL WORK!!!

Pd _____

I. Write the expression using rational exponents.

1. $\sqrt[4]{3}$

2. $\sqrt[5]{5}$

3. $(\sqrt[3]{7})^5$

4. $(\sqrt[6]{5})^5$

II. Write the expression using radical notation.

5. $19^{\frac{2}{3}}$

6. $2^{\frac{4}{5}}$

7. $5^{\frac{1}{3}}$

8. $7^{\frac{9}{5}}$

III. Simplify. Leave all answers exact.

9. $8^{\frac{4}{3}}$

10. $36^{\frac{3}{2}}$

11. $16^{\frac{3}{4}}$

12. $81^{\frac{3}{2}}$

13. $64^{\frac{2}{3}}$

14. $32^{\frac{2}{5}}$

15. $4^{\frac{5}{2}}$

16. $81^{\frac{3}{4}}$

17. $x^{\frac{2}{3}} \cdot x^{\frac{4}{3}}$

18. $\sqrt[3]{2} \cdot \sqrt[3]{4}$

19. $\left(\frac{64}{125}\right)^{\frac{1}{3}}$

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

21. $\sqrt[3]{27x} \cdot \sqrt[3]{9x^4}$

22. $\frac{\sqrt{12x^2}}{\sqrt{3}}$

23. $\sqrt[4]{256xy^5}$

24. $\sqrt[3]{12} \cdot \sqrt[3]{9}$

25. $5^{\frac{1}{2}} \cdot 5^{\frac{1}{4}}$

26. $8^{\frac{2}{3}} \cdot 8$

27. $\frac{\sqrt[4]{80}}{\sqrt[4]{16}}$

28. $(x^{\frac{1}{2}} \cdot x^{\frac{3}{2}})^{\frac{4}{3}}$

29. $3\left(2^{\frac{1}{3}}\right) + 5\left(2^{\frac{1}{3}}\right)$

30. $4\sqrt{2} - \sqrt{8}$

31. $\sqrt[3]{40} + \sqrt[3]{5}$

32. $\sqrt[5]{96} - 4\sqrt[5]{3}$

33. $\sqrt{8} + \sqrt{18}$

5.1 Practice Worksheet Answers

This means you know if you are right or wrong, but you MUST show work to earn full credit.

I. Write the expression using rational exponents.

1. $3^{\frac{1}{4}}$

2. $5^{\frac{1}{5}}$

3. $7^{\frac{5}{3}}$

4. $5^{\frac{5}{6}}$

II. Write the expression using radical notation.

5. $\sqrt[3]{19^2}$ or $(\sqrt[3]{19})^2$

6. $\sqrt[5]{2^4}$ or $(\sqrt[5]{2})^4$

7. $\sqrt[3]{5}$

8. $\sqrt[5]{7^9}$ or $(\sqrt[5]{7})^9$

III. Simplify, leaving all answers exact.

9. 16

10. 216

11. 8

12. 729

13. 16

14. 4

15. 32

16. 27

17. x^2

18. 2

19. $\frac{4}{5}$

20. $3x\sqrt{2x}$

21. $3x\sqrt[3]{9x^2}$

22. $2x$

23. $4y^4\sqrt{xy}$

24. $3\sqrt[3]{4}$

25. $5^{\frac{3}{4}}$

26. 32

27. $\sqrt[4]{5}$

28. $x^{\frac{2}{3}} \cdot x^2 = x^2 \cdot \sqrt[3]{x^2}$

29. $8\left(2^{\frac{1}{3}}\right)$ or $8\sqrt[3]{2}$

30. $2\sqrt{2}$

31. $3\sqrt[3]{5}$

32. $-2\sqrt[5]{3}$

33. $5\sqrt{2}$