

WORKSHEET #3 Radicals & Rational Exponents

Name: _____

Write each expression in radical form.

1) $7^{\frac{1}{2}}$

2) $4^{\frac{4}{3}}$

3) $2^{\frac{5}{3}}$

4) $7^{\frac{4}{3}}$

5) $6^{\frac{3}{2}}$

6) $2^{\frac{1}{6}}$

Write each expression in exponential form.

7) $(\sqrt{10})^3$

8) $\sqrt[6]{2}$

9) $(\sqrt[4]{2})^5$

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

11) $\sqrt[3]{2}$

12) $\sqrt[6]{10}$

Write each expression in radical form.

13) $(5x)^{-\frac{5}{4}}$

14) $(5x)^{-\frac{1}{2}}$

15) $(10n)^{\frac{3}{2}}$

16) $a^{\frac{6}{5}}$

17) $(6v)^{1.5}$

18) $m^{-\frac{1}{2}}$

Write each expression in exponential form.

19) $(\sqrt[4]{m})^3$

20) $(\sqrt[3]{6x})^4$

21) $\sqrt[4]{v}$

22) $\sqrt{6p}$

23) $(\sqrt[3]{3a})^4$

24) $\frac{1}{(\sqrt{3k})^5}$

Simplify.

25) $9^{\frac{1}{2}}$

26) $343^{-\frac{4}{3}}$

27) $1000000^{\frac{1}{6}}$

28) $36^{\frac{3}{2}}$

29) $(x^6)^{\frac{1}{2}}$

30) $(9n^4)^{\frac{1}{2}}$

31) $(64n^{12})^{-\frac{1}{6}}$

32) $(81m^6)^{\frac{1}{2}}$

ANSWERS:

1. $\sqrt{7}$ 2. $(\sqrt[3]{4})^4$ 3. $(\sqrt[3]{2})^5$ 4. $(\sqrt[3]{7})^4$ 5. $(\sqrt{6})^3$ 6. $\sqrt[6]{2}$ 7. $10^{\frac{3}{2}}$ 8. $2^{\frac{1}{6}}$
 9. $2^{\frac{5}{4}}$ 10. $5^{\frac{5}{4}}$ 11. $2^{\frac{1}{3}}$ 12. $10^{\frac{1}{6}}$ 13. $\frac{1}{(\sqrt[4]{5x})^5}$ 14. $\frac{1}{\sqrt{5x}}$ 15. $(\sqrt{10n})^3$ 16. $(\sqrt[5]{a})^6$
 17. $(\sqrt{6v})^3$ 18. $\frac{1}{\sqrt{m}}$ 19. $m^{\frac{3}{4}}$ 20. $(6x)^{\frac{4}{3}}$ 21. $v^{\frac{1}{4}}$ 22. $(6p)^{\frac{1}{2}}$ 23. $(3a)^{\frac{4}{3}}$ 24. $(3k)^{-\frac{5}{2}}$
 25. 3 26. $\frac{1}{2401}$ 27. 10 28. 216 29. x^3 30. $3n^2$ 31. $\frac{1}{2n^2}$ 32. $9m^3$