

Name _____
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Date _____
Algebra II

Given Fractional Exponents

Evaluate each of the following:

1. $25^{\frac{1}{2}}$

2. $8^{\frac{1}{3}}$

3. $100^{\frac{1}{2}}$

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

5. $27^{\frac{2}{3}}$

6. $125^{\frac{5}{3}}$

7. $8^{\frac{5}{3}}$

8. $81^{\frac{3}{4}}$

9. $16^{\frac{3}{2}}$

10. $16^{\frac{5}{4}}$

11. $36^{\frac{3}{2}}$

12. $32^{\frac{2}{5}}$

Express each of the following without exponents:

13. $5x^{\frac{1}{3}}$

14. $(5x)^{\frac{1}{3}}$

15. $27x^{\frac{3}{2}}$

Express each of the following in simplest terms

16. $(4x^2y^5)^{\frac{1}{2}}$

17. $(8x^{-6}y^5)^{\frac{1}{3}}$

18. $(25x^{-8}y^7)^{\frac{3}{2}}$

19. $(27x^{-3}y^2)^{-\frac{1}{3}}$

20. $\left(\frac{16x^3y^{-6}}{z^{-4}}\right)^{\frac{5}{2}}$

21. $\left(\frac{64x^{-3}y^7}{z^6}\right)^{-\frac{2}{3}}$

22. The expression $x^{-\frac{2}{5}}$ is equivalent to

(1) $-\sqrt[2]{x^5}$ (2) $-\sqrt[5]{x^2}$ (3) $\frac{1}{\sqrt[2]{x^5}}$ (4) $\frac{1}{\sqrt[5]{x^2}}$

23. Which expression is equivalent to $(9x^2y^6)^{-\frac{1}{2}}$?

1) $\frac{1}{3xy^3}$ 3) $\frac{3}{xy^3}$
2) $3xy^3$ 4) $\frac{xy^3}{3}$

24. If $n > 0$, the expression $\left(\frac{1}{n}\right)^{-\frac{2}{3}}$ is equal to

(1) $-n^{\frac{2}{3}}$ (3) $\sqrt[3]{n^2}$
(2) $-n^{\frac{3}{2}}$ (4) $\sqrt{n^3}$