

Rational Exponents and Radicals Assignment

Change the following expression from rational exponents to radicals.

1. $g^{3/5}$

2. $d^{2/5}$

3. $(a^3)^{5/2}$

4. $(v^2)^{5/3}$

5. $10^{2/3}$

Change the following radicals to rational exponents.

6. $\sqrt{x^5}$

7. $\sqrt[3]{a^2}$

8. $\sqrt{5^3}$

9. $\sqrt{11}$

10. $\sqrt{ab^3}$

Rational Exponents and Radicals Assignment

Simplify the following expressions with rational exponents.

11. $(9)^{5/2}$

12. $64^{3/2}$

13. $(4x^4)^{1/2}$

14. $(b^6)^{-2/3}$

Evaluate the following radicals.

15. $\sqrt[6]{8}$

16. $\sqrt[4]{4x^8}$

17. $\sqrt[3]{16}$

18. $\sqrt[7]{x^9}$

19. $\sqrt[3]{\frac{9}{x^{12}}}$

20. $\sqrt[4]{\frac{3}{16x^8}}$

Rational Exponents and Radicals Assignment

Answer:

Change the following expressions from rational exponents to radicals.

$$1. \quad g^{3/5} = \sqrt[5]{g^3}$$

$$2. \quad d^{2/5} = \sqrt[5]{d^2}$$

$$3. \quad (a^3)^{5/2} = \sqrt{(a^3)^5} = \sqrt{a^{15}}$$

$$4. \quad (v^2)^{5/3} = \sqrt[3]{(v^2)^5} = \sqrt[3]{v^{10}}$$

$$5. \quad 10^{2/3} = \sqrt[3]{10^2}$$

Change the following radicals to rational exponent.

$$6. \quad \sqrt{x^5} = x^{5/2}$$

$$7. \quad \sqrt[3]{a^2} = a^{2/3}$$

$$8. \quad \sqrt{5^3} = (5^3)^{1/2} = 125^{1/2}$$

$$9. \quad \sqrt{11} = 11^{1/2}$$

$$10. \quad \sqrt{ab^3} = (ab^3)^{1/2} = a^{1/2}b^{3/2}$$

Simplify the following expression in rational exponent.

$$11. \quad (9)^{5/2} = \sqrt{9^5} = \sqrt{(3^2)^5} = 3^5 = 243$$

$$12. \quad 64^{3/2} = \sqrt{64^3} = \sqrt{(8^2)^3} = 8^3 = 512$$

$$13. \quad (4x^4)^{1/2} = \sqrt{4x^4} = 2x^2$$

$$14. \quad (b^6)^{-2/3} = \frac{1}{\sqrt[3]{(b^6)^2}} = \frac{1}{b^4}$$

Evaluate the following radicals.

$$15. \quad \sqrt[6]{8} = \sqrt[3]{\sqrt{8}} = \sqrt{2}$$

$$16. \quad \sqrt[4]{4x^8} = \sqrt{\sqrt{4x^8}} = \sqrt{2x^4} = x^2\sqrt{2}$$

$$17. \quad \sqrt[3]{16} = (8 \times 2)^{1/3} = 2\sqrt[3]{2}$$

$$18. \quad \sqrt[7]{x^9} = (x^7 \times x^2)^{1/7} = x\sqrt[7]{x^2}$$

$$19. \quad \sqrt[3]{\frac{9}{x^{12}}} = \frac{(9)^{1/3}}{(x^{12})^{1/3}} = \frac{\sqrt[3]{9}}{x^4}$$

$$20. \quad \sqrt[4]{\frac{3}{16x^8}} = \frac{(3)^{1/4}}{(16x^8)^{1/4}} = \frac{\sqrt[4]{3}}{2x^2}$$