

Homework 1.4 Rational Exponents

Write each expression in radical form.

1. $p^{\frac{5}{4}}$

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

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

4. $(6x)^{\frac{3}{2}}$

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

6. $(5x)^{\frac{4}{3}}$

Write each expression in exponential form.

7. $(\sqrt[4]{3a})^7$

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

9. $(\sqrt[3]{n})^2$

10. $\sqrt[4]{10x^5}$

11. $\sqrt[5]{10m^3}$

12. $(\sqrt[3]{10x})^2$

Simplify.

13. $(216a^9)^{\frac{4}{3}}$

14. $(81x^4)^{\frac{3}{2}}$

15. $(16n^4)^{\frac{1}{2}}$

16. $(k^6)^{\frac{2}{3}}$

17. $(b^8)^{\frac{1}{2}}$

18. $(64n^6)^{\frac{1}{2}}$

19. $(n^9)^{\frac{4}{3}}$

20. $(343v^9)^{\frac{2}{3}}$

21. $(1000000m^{18})^{\frac{1}{6}}$

Write each expression in radical form.

1. $p^{\frac{5}{4}}$

$$= \sqrt[4]{p^5}$$

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

$$= \sqrt[3]{(10n)^2}$$

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

$$= \sqrt[3]{(4x)^2}$$

4. $(6x)^{\frac{3}{2}}$

$$= \sqrt{(6x)^3}$$

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

$$= \sqrt{b^5}$$

6. $(5x)^{\frac{4}{3}}$

$$= \sqrt[3]{(5x)^4}$$

Write each expression in exponential form.

7. $(\sqrt[4]{3a})^7$

$$= (3a)^{\frac{7}{4}}$$

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

$$= (4x)^{\frac{1}{4}}$$

9. $(\sqrt[3]{n})^2$

$$= n^{\frac{2}{3}}$$

10. $\sqrt[4]{10x^5}$

$$= (10x^5)^{\frac{1}{4}}$$

11. $\sqrt[5]{10m^3}$

$$= (10m^3)^{\frac{1}{5}}$$

12. $(\sqrt[3]{10x})^2$

$$= (10x)^{\frac{2}{3}}$$

Simplify.

13. $(216a^9)^{\frac{4}{3}}$

$$= 1296a^{12}$$

14. $(81x^4)^{\frac{3}{2}}$

$$= 729x^6$$

15. $(16n^4)^{\frac{1}{2}}$

$$= 4n^2$$

16. $(k^6)^{\frac{2}{3}}$

$$= k^8$$

17. $(b^8)^{\frac{1}{2}}$

$$= b^4$$

18. $(64n^6)^{\frac{1}{2}}$

$$= 8n^3$$

19. $(n^9)^{\frac{4}{3}}$

$$= n^{12}$$

20. $(343v^9)^{\frac{2}{3}}$

$$= 49v^6$$

21. $(1000000m^{18})^{\frac{1}{6}}$

$$= 10m^3$$