

Rational Exponents and Radicals Bell Work

Change the following expressions from rational exponents to radicals.

1. $a^{5/3}$

2. $7^{7/4}$

Change the following radical expressions to rational exponents.

3. $\sqrt[4]{2^5}$

4. $\sqrt{a^5}$

Simplify the following expressions with rational exponents.

5. $(a^6)^{2/3}$

6. $(x^4 y^8)^{3/4}$

Evaluate the following radicals.

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

8. $\sqrt[3]{8^4}$

9. $\sqrt{18x^6}$

10. $\sqrt[5]{\frac{-5}{32}}$

Rational Exponents and Radicals Bell Work

Answer:

Change the following expressions from rational exponents to radicals.

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

2. $7^{7/4} = \sqrt[4]{7^7}$

Change the following radical expressions to rational exponents.

3. $\sqrt[4]{2^5} = 2^{5/4}$

4. $\sqrt{a^5} = a^{5/2}$

Simplify the following expressions with rational exponents.

5. $(a^6)^{2/3} = \sqrt[3]{(a^6)^2} = \sqrt[3]{a^{12}} = a^4$

6. $(x^4 y^8)^{3/4} = \sqrt[4]{(x^4 y^8)^3} = \sqrt[4]{x^{12} y^{24}} = x^3 y^6$

Evaluate the following radicals.

7. $\sqrt[3]{(x^3)^7} = (x^3)^{7/3} = x^7$

8. $\sqrt[3]{8^4} = (8)^{4/3} = (2^3)^{4/3} = 2^4 = 16$

9. $\sqrt{18x^6} = (9 \times 2)^{1/2} (x^6)^{1/2} = 3x^3 \sqrt{2}$

10. $\sqrt[5]{\frac{-5}{32}} = \frac{(5)^{1/5}}{(-2^5)^{1/5}} = \frac{\sqrt[5]{5}}{-2}$