

Algebra 2 Regents Exam

May 27, 2024

Part I

1. The expression $\sqrt[3]{64x^8}$ is equivalent to
 - (a) $4x^{\frac{8}{3}}$
 - (b) $4x^3$
 - (c) $4x^{\frac{2}{3}}$
 - (d) $4x^{\frac{11}{3}}$
2. The expression $\sqrt[4]{81x^8y^{12}}$ is equivalent to
 - (a) $3x^2y^3$
 - (b) $3x^2y$
 - (c) $9x^4y^3$
 - (d) $9x^2y^6$
3. For n and $p > 0$, is the expression $\sqrt[3]{\frac{n^5p^2}{n^2p^4}}$ equivalent to
 - (a) $\sqrt[3]{\frac{n^3}{p^2}}$
 - (b) $\frac{n}{p}$
 - (c) $n^{\frac{1}{3}}p^{-1}$
 - (d) $n^{\frac{1}{3}}p^{\frac{1}{3}}$
4. The expression $\frac{\sqrt{50}}{\sqrt{2}}$ is equivalent to

- (a) 25
- (b) 5
- (c) $5\sqrt{2}$
- (d) $\sqrt{25}$

5. Which expression is equivalent to $\sqrt[5]{x^3}$?

- (a) $x^{\frac{3}{5}}$
- (b) $x^{\frac{5}{3}}$
- (c) $\sqrt[5]{x^8}$
- (d) $\sqrt[3]{x^5}$

6. For n and $p > 0$, is the expression $\sqrt[3]{\frac{n^5 p^2}{n^2 p^4}}$ equivalent to $\frac{n}{p}$? Justify your answer.

7. For n and $p > 0$, is the expression $\left(p^2 n^{\frac{1}{2}}\right)^8 \sqrt{p^5 n^4}$ equivalent to $p^{18} n^6 \sqrt{p}$? Justify your answer.

8. Justify why $\sqrt[3]{x^4 y^5}$ is equivalent to $x^{\frac{4}{3}} y^{\frac{5}{3}}$ using properties of rational exponents, where $x > 0$ and $y > 0$.