

ALGEBRA 2

Exponents – Multiple Choice

1. The expression $\frac{3}{4}\sqrt{-80}$ is equivalent to

- (1) $3i\sqrt{5}$ (3) $-3\sqrt{5}$
(2) $2i\sqrt{15}$ (4) $-2\sqrt{15}$

2. For positive values of x , which expression is equivalent to

$$\sqrt{16x^2} * x^{\frac{2}{3}} + \sqrt[3]{8x^5}$$

- (1) $6\sqrt[5]{x^3}$ (3) $4\sqrt[3]{x^2} + 2\sqrt[3]{x^5}$
(2) $6\sqrt[3]{x^5}$ (4) $4\sqrt{x^3} + 2\sqrt[5]{x^3}$

3. If $n = \sqrt{a^5}$ and $m = a$, $a > 0$, an expression for n/m could be

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

4. What does $\left(\frac{-54x^9}{y^4}\right)^{\frac{2}{3}}$ equal?

- (1) $\frac{9ix^6\sqrt[3]{4}}{y^3\sqrt{y^2}}$ (3) $\frac{9x^6\sqrt[3]{4}}{y^3\sqrt{y}}$
(2) $\frac{9ix^6\sqrt[3]{4}}{y^2\sqrt[3]{y^2}}$ (4) $\frac{9x^6\sqrt[3]{4}}{y^2\sqrt[3]{y^2}}$

5. For $x \neq 0$, which expressions are equivalent to one divided by the sixth root of x ?

I. $\frac{\sqrt[6]{x}}{\sqrt[3]{x}}$ II. $\frac{x^{\frac{1}{6}}}{x^{\frac{1}{3}}}$ III. $x^{\frac{-1}{6}}$

- (1) I and II, only (3) II and III, only
(2) I and III, only (4) I, II, and III

6. The expression $\left(\frac{m^2}{m^{\frac{1}{3}}}\right)^{-\frac{1}{2}}$ is equivalent to

(1) $-\sqrt[6]{m^5}$

(3) $-m^{\frac{5}{2}}\sqrt{m}$

(2) $\frac{1}{\sqrt[6]{m^5}}$

(4) $\frac{1}{\sqrt[5]{m}}$

7. When $b > 0$ and d is a positive integer, the expression $(3b)^{\frac{2}{d}}$ is equivalent to

(1) $\frac{1}{(\sqrt[d]{3b})^2}$

(3) $\frac{1}{\sqrt{3b^d}}$

(2) $(\sqrt{3b})^d$

(4) $(\sqrt[d]{3b})^2$

8. The expression $9^{\frac{3}{2}} * 27^{\frac{1}{2}}$ is equivalent to

(1) 3^2

(3) 243^2

(2) $3^{\frac{9}{2}}$

(4) $243^{\frac{3}{4}}$

9. The expression $\left(x^{\frac{1}{2}}y^{-\frac{2}{3}}\right)^{-6}$ is equivalent to

(1) $\frac{y^4}{x^3}$

(3) $\frac{1}{x^3y^4}$

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

(4) x^3y^4

10. The product of $\sqrt[3]{4m^2}$ and $\sqrt[3]{10m}$ expressed in simplest radical form is

$$(1)\sqrt[3]{40m^3}$$

$$(2)2\sqrt[3]{5m^3}$$

$$(3)m\sqrt[3]{40}$$

$$(4)2m\sqrt[3]{5}$$

Answers

1. (1)

2.(2)

3.(4)

4.(4)

5.(4)

6.(2)

7.(4)

8.(2)

9.(1)

10.(4)