Regents Exam Questions A2.A.10: Fractional Exponents as Radicals Name: _____
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A2.A.10: Fractional Exponents as Radicals: Rewrite algebraic expressions with fractional exponents as radical expressions

1 If x is a positive integer, $4x^{\frac{1}{2}}$ is equivalent to
1) $\frac{2}{x}$
2) $2x$
3) $4\sqrt{x}$
4) $4\frac{1}{x}$

2 The expression $x^{-\frac{2}{5}}$ is equivalent to
1) $-\sqrt[2]{x^5}$
2) $-\sqrt[5]{x^2}$
3) $\frac{1}{\sqrt[2]{x^5}}$
4) $\frac{1}{\sqrt[5]{x^2}}$

3 The expression $b^{-\frac{3}{2}}$, $b > 0$, is equivalent to
1) $\frac{1}{\left(\sqrt[3]{b}\right)^2}$
2) $\frac{1}{\left(\sqrt{b}\right)^3}$
3) $-\left(\sqrt{b}\right)^3$
4) $\left(\sqrt[3]{b}\right)^2$

4 If $n > 0$, the expression $\left(\frac{1}{n}\right)^{-\frac{2}{3}}$ is equal to
1) $-n^{\frac{2}{3}}$
2) $-n^{\frac{3}{2}}$
3) $\sqrt[3]{n^2}$
4) $\sqrt{n^3}$

5 Simplify: $\sqrt{a^{\frac{1}{2}}}$

6 Simplify: $\left(\sqrt{a^6}\right)^{\frac{1}{2}}$

7 When simplified, the expression $\left(\sqrt[3]{m^4}\right)\left(m^{-\frac{1}{2}}\right)$ is equivalent to
1) $\sqrt[3]{m^{-2}}$
2) $\sqrt[4]{m^3}$
3) $\sqrt[5]{m^{-4}}$
4) $\sqrt[6]{m^5}$

8 Simplify: $(16a^4b^5 - 8a^6b^3)^{\frac{1}{3}}$

9 The expression $(x^2 - 1)^{-\frac{2}{3}}$ is equivalent to
1) $\sqrt[3]{(x^2-1)^2}$
2) $\frac{1}{\sqrt[3]{(x^2-1)^2}}$
3) $\sqrt{(x^2-1)^3}$
4) $\frac{1}{\sqrt{(x^2-1)^3}}$

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Answer Section

1 ANS: 3 REF: 060208b

2 ANS: 4

$$x^{-\frac{2}{5}} = \frac{1}{x^{\frac{2}{5}}} = \frac{1}{\sqrt[5]{x^2}}$$

REF: 011118a2

3 ANS: 2 REF: 010413b

4 ANS: 3 REF: 080807b

5 ANS:

$\sqrt[4]{a}$

REF: 099414al

6 ANS:

$a\sqrt{a}$

REF: 119411al

7 ANS: 4 REF: 010617b

8 ANS:

$2ab\sqrt[3]{2ab^2 - a^3}$

REF: 069812al

9 ANS: 2 REF: 061011a2