NAME _____

BELL RINGER

1.) Simplify $(a^3)^2(2a)^4$

2.) Solve the system of equations $y = 5x - 1$
$y = 2x + 8$

3.) Find the probability of choosing an ace or three from a standard deck of cards.

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NAME ANSWER KEY

BELL RINGER

1.) Simplify $(a^3)^2(2a)^4$ $16a^{10}$

2.) Solve the system of equations $y = 5x - 1$ (3, 14)
$y = 2x + 8$

3.) Find the probability of choosing an ace or three from a standard deck of cards.
$\frac{8}{52} = \frac{2}{13}$

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HSN-RN.A.2

Properties of Rational Exponents	Definition	Example
Product of Powers		
Power of a Power		
Power of a Product		
Negative Exponent		
Zero Exponent		
Quotient of Powers		
Power of a Quotient		

Properties of Radicals	Definition	Example
Product Property		
Quotient Property		

HSN-RN.A.2

Properties of Rational Exponents	Definition	Example
Product of Powers	$a^m \cdot a^n = a^{m+n}$	$6^{\frac{1}{2}} \cdot 6^{\frac{3}{2}} = 6^{\frac{1}{2}+\frac{3}{2}} = 6^2 = 36$
Power of a Power	$(a^m)^n = a^{mn}$	$(2^{\frac{5}{2}})^2 = 2^{\frac{5}{2}\cdot 2} = 2^5 = 32$
Power of a Product	$(ab)^m = a^m b^m$	$(36 \cdot 16)^{\frac{1}{2}} = 36^{\frac{1}{2}} \cdot 16^{\frac{1}{2}} = 6 \cdot 4 = 24$
Negative Exponent	$a^{-m} = \frac{1}{a^m}, a \neq 0$	$81^{-\frac{1}{2}} = \frac{1}{81^{\frac{1}{2}}} = \frac{1}{9}$
Zero Exponent	$a^0 = 1, a \neq 0$	$136^0 = 1$
Quotient of Powers	$\frac{a^m}{a^n} = a^{m-n}, a \neq 0$	$\frac{7^{\frac{7}{3}}}{7^{\frac{1}{3}}} = 7^{\frac{7}{3}-\frac{1}{3}} = 7^2 = 49$
Power of a Quotient	$(\frac{a}{b})^m = \frac{a^m}{b^m}, b \neq 0$	$(\frac{16}{81})^{\frac{1}{4}} = \frac{16^{\frac{1}{4}}}{81^{\frac{1}{4}}} = \frac{2}{3}$

Properties of Radicals	Definition	Example
Product Property	$\sqrt[n]{a \cdot b} = \sqrt[n]{a} \cdot \sqrt[n]{b}$	$\sqrt[4]{2} \cdot \sqrt[4]{8} = \sqrt[4]{16} = 2$
Quotient Property	$\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}, b \neq 0$	$\frac{\sqrt[3]{54}}{\sqrt[3]{2}} = \sqrt[3]{\frac{54}{2}} = \sqrt[3]{27} = 3$

Properties of Rational Exponents and Radicals HSN-RN.A.2

NAME _____

Show that you can apply the properties of integer exponents to rational exponents and radicals by simplifying each expression.

$5^{\frac{1}{3}} \cdot 5^{\frac{2}{3}} =$

$\sqrt[3]{5} \cdot \sqrt[3]{25} =$

$(2^{\frac{3}{4}})^4 =$

$\sqrt{3} \cdot \sqrt{27} =$

$\frac{3^{\frac{5}{3}}}{3^{\frac{1}{3}}} =$

$\frac{\sqrt[4]{32}}{\sqrt[4]{2}} =$

$(\frac{7^{\frac{3}{2}}}{7^{\frac{1}{2}}})^2 =$

$\frac{\sqrt[3]{48}}{\sqrt[3]{3}} =$

Properties of Rational Exponents and Radicals HSN-RN.A.2

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Properties of Rational Exponents and Radicals HSN-RN.A.2

NAME ANSWER KEY

Show that you can apply the properties of integer exponents to rational exponents and radicals by simplifying each expression.

$5^{\frac{1}{3}} \cdot 5^{\frac{2}{3}} = 5$

$\sqrt[3]{5} \cdot \sqrt[3]{25} = 5$

$(2^{\frac{3}{4}})^4 = 2^3 = 8$

$\sqrt{3} \cdot \sqrt{27} = 9$

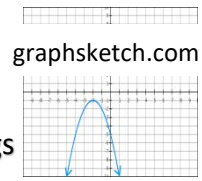
$\frac{3^{\frac{5}{3}}}{3^{\frac{1}{3}}} = 3^2 = 9$

$\frac{\sqrt[4]{32}}{\sqrt[4]{2}} = 2$

$(\frac{7^{\frac{3}{2}}}{7^{\frac{1}{2}}})^2 = 7^2 = 49$

$\frac{\sqrt[3]{48}}{\sqrt[3]{3}} = 2\sqrt[3]{2}$

Special thanks to:



Score: ____/____ **EXIT SLIP** **N**AME _____

STANDARD: HSN-RN.A.2
OBJECTIVE: Students will be able to use properties of rational exponents and radicals to simplify expressions.

Simplify the expression $3\sqrt{12} - 11\sqrt{3}$.

On a scale from 1-5, 5 being the greatest, how well do you understand this standard? Circle your number below.

1 2 3 4 5

Score: ____/____ **EXIT SLIP** **N**AME _____

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$-5\sqrt{3}$

On a scale from 1-5, 5 being the greatest, how well do you understand this standard? Circle your number below.

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