

Name _____

Date: _____

Winter Olympics 2014 - Trivia Puzzle
Simplifying and Evaluating Expressions with Rational Exponents and Radicals

There will be a total of about 1300 medals manufactured for the 2014 Winter Olympics. The Sochi 2014 Olympic medals are truly unique and feature Sochi 2014's "Patchwork Quilt" – a mosaic of national designs from the various cultures and ethnicities of the Russian Federation.



Directions: Simplify or evaluate each expression. The word or phrase next to the correct response will complete each statement. Use the back side to show your work.

- Evaluate** $\sqrt[5]{243}$

Speed Skater Apollo Ohno is the most decorated US Winter Olympian, winning a total of _____ medals.

 - 3 eight
 - 9 six
 - 81 ten
- Evaluate** $\sqrt[3]{125}$

Bonnie Blair, the most decorated US female at the Winter Games, has won 6 medals and grew up in _____, Illinois.

 - 25 Peoria
 - 5 Champaign
 - $41\frac{2}{3}$ Chicago
- Write** $25y^{\frac{1}{2}}$ **in radical form**

The only 2 countries south of the Equator to win medals at the Winter Games are _____.

 - $25\sqrt{y}$ Australia and New Zealand
 - $5\sqrt{y}$ Brazil and Australia
 - $\sqrt{5y}$ South Africa and New Zealand
- Write** $36x^{\frac{3}{4}}$ **in radical form**

After her bronze medal run on 2/10/2014, Julia Mancusco became the winningest US female skier, with a total of _____ medals.

 - $36 \cdot \sqrt[4]{x^3}$ four
 - $36 \cdot \sqrt[3]{x^4}$ six
 - $6 \cdot \sqrt[4]{x^3}$ five
- Write** $\sqrt[3]{(3x)^4}$ **in exponential form**

Edie Egan is the only American to win medals at both the summer and winter games. He won gold medals in the bobsled and _____.

 - $(3x)^{\frac{3}{4}}$ marathon
 - $3x^{\frac{4}{3}}$ swimming
 - $(3x)^{\frac{4}{3}}$ boxing
- Simplify** $b^{\frac{1}{3}}(b^4)^{\frac{1}{3}}$ **and write in radical form**

On 2/17/14, Davis and White became the first Americans to win a gold medal in _____.

 - $\sqrt[5]{b^3}$ luge
 - $\sqrt[3]{b^5}$ ice dancing
 - $\sqrt[3]{b^4}$ pairs figure skating
- Simplify** $(3x)^2 \cdot (9x)^{\frac{1}{2}}$ **and write in radical form**

For the first time in 12 years, Austria did not win the gold medal in the team ski jump event, as they were beat out by _____.

 - $27x$ United States
 - $27 \cdot \sqrt[2]{x^5}$ Germany
 - $81 \cdot \sqrt[2]{x^5}$ Japan
- Write** $\sqrt[3]{x^4} \cdot \sqrt[3]{x}$ **in exponential form and simplify**

Darya Domracheva (biathlon) is the most decorated Olympian from the country of _____.

 - $x^{\frac{3}{5}}$ Norway
 - $x^{\frac{4}{3}}$ Germany
 - $x^{\frac{5}{3}}$ Belarus

Show Your Work

Evaluate $\sqrt[3]{243}$

Evaluate $\sqrt[3]{125}$

Write $25y^{\frac{1}{2}}$ in radical form

Write $36x^{\frac{3}{4}}$ in radical form



Write $\sqrt[3]{(3x)^4}$ in exponential form

Simplify $b^{\frac{1}{3}}(b^4)^{\frac{1}{3}}$ and write in radical form

Simplify $(3x)^2 \cdot (9x)^{\frac{1}{2}}$ and write in radical form

Write $\sqrt[3]{x^4} \cdot \sqrt[3]{x}$ in exponential form and simplify