

Group Members:

Per: 1

Review: Radicals & Rational Exponents

Directions: Work **together** to simplify each problem. Do not divide up the work! Each person should be participating. At the end of class, one person's paper will be chosen at random and graded for the group.

Simplifying

| | | |
|--------------------------|--------------------------|-------------------------------|
| 1. $\sqrt{300m^4n^{25}}$ | 2. $\sqrt[3]{-72a^9b^2}$ | 3. $\sqrt[4]{81m^{11}n^{20}}$ |
|--------------------------|--------------------------|-------------------------------|

Operations

| | |
|---|--|
| 4. $4\sqrt{98} + \sqrt{150} - 2\sqrt{32}$ | 5. $10\sqrt[4]{5} + 7\sqrt[3]{40} - \sqrt[3]{320}$ |
| 6. $3\sqrt[4]{8} \cdot 7\sqrt[4]{32}$ | 7. $\sqrt[3]{-6x^5} \cdot \sqrt[3]{18x^4}$ |
| 8. $\sqrt{3}(2 - \sqrt{24})$ | 9. $(4 + 3\sqrt{5}) \cdot (-2 + \sqrt{5})$ |
| 10. $(1 + 7\sqrt{3})(1 - 7\sqrt{3})$ | 11. $(3 + \sqrt{6})^2$ |
| 12. $\frac{-45\sqrt{156}}{9\sqrt{3}}$ | 13. $\frac{\sqrt[4]{r^{20}s^9}}{\sqrt[4]{r^3s}}$ |

| | |
|---------------------------------------|--------------------------------------|
| 14. $\sqrt{\frac{50}{81}}$ | 15. $\sqrt[4]{\frac{3a}{16b^8}}$ |
| 16. $\frac{\sqrt{6}}{4\sqrt{3}}$ | 17. $\sqrt{\frac{8x}{5}}$ |
| 18. $\frac{2-\sqrt{12}}{\sqrt{3}}$ | 19. $\frac{3+\sqrt{3}}{4\sqrt{12}}$ |
| 20. $\frac{5-4\sqrt{2}}{4-3\sqrt{2}}$ | 21. $\frac{2+3\sqrt{3}}{\sqrt{3}+5}$ |

Rational exponents

**Final answers must be in simplest radical form!

| | | |
|---|--|---------------------------------|
| 22. $x^{\frac{2}{3}} \cdot x^{\frac{11}{3}}$ | 23. $32^{\frac{1}{8}} \cdot 32^{\frac{3}{8}}$ | 24. $n^{\frac{7}{3}} \cdot n^3$ |
| 25. $\frac{7^{\frac{9}{4}}}{7^{\frac{1}{4}}}$ | 26. $\left(k^{\frac{3}{2}}\right)^{\frac{1}{2}}$ | 27. $1,296^{\frac{1}{4}}$ |
| 28. $\frac{125^{\frac{1}{3}}}{125^{\frac{2}{3}}}$ | 29. $\frac{\sqrt[4]{3^3}}{\sqrt{3}}$ | 30. $\sqrt[4]{10^2 a^{18}}$ |

Name: _____

Unit 6: Radical Functions

Date: _____ Bell: _____

Homework 5: Radicals & Rational Exponents
Review**** This is a 2-page document! ******Directions:** Simplify each expression.

1. $7\sqrt{192m^9n^2}$

2. $\sqrt[3]{-135x^6y^{13}}$

3. $\sqrt[4]{1,250a^7b^{24}}$

4. $-2\sqrt{27} - \sqrt{18} + 3\sqrt{72}$

5. $2\sqrt[4]{405} - 3\sqrt[4]{80} - \sqrt[3]{192}$

6. $-3\sqrt{6} \cdot -6\sqrt{8}$

7. $5\sqrt[3]{-3w^2} \cdot 2\sqrt[3]{36w^3}$

8. $\sqrt{15}(2\sqrt{6} - 7\sqrt{5})$

9. $(3\sqrt{3} - 2)(4\sqrt{3} + 5)$

10. $(1 - 7\sqrt{2})(1 + 7\sqrt{2})$

11. $(5 + \sqrt{12})^2$

12. $\frac{-20\sqrt{315}}{5\sqrt{5}}$

13. $\sqrt{\frac{12}{27}}$

| | |
|---|--|
| 14. $\frac{8\sqrt[3]{144a^{15}}}{4\sqrt[3]{3a^5}}$ | 15. $\frac{5\sqrt[4]{2}}{4\sqrt[4]{162}}$ |
| 16. $\frac{6\sqrt{20}}{\sqrt{18}}$ | 17. $\frac{4+\sqrt{6}}{3\sqrt{6}}$ |
| 18. $\frac{7}{4+\sqrt{5}}$ | 19. $\frac{2+5\sqrt{2}}{2-\sqrt{2}}$ |

Directions: Use the exponent rules to simplify. Write all answers in simplest radical form.

| | | |
|--|---|---|
| 20. $5r^3 \cdot 2r^{\frac{1}{2}}$ | 21. $(3v)^{\frac{2}{3}} \cdot (3v)$ | 22. $\frac{n^{\frac{7}{4}}}{n^{\frac{5}{4}}}$ |
| 23. $(243x^5)^{\frac{4}{5}}$ | 24. $\frac{\left(54^{\frac{1}{2}}\right)^{\frac{5}{3}}}{54^{\frac{1}{2}}}$ | 25. $\left(\frac{144}{9}\right)^{\frac{1}{4}}$ |
| 26. $4p \cdot 3p^{\frac{5}{4}}$ | 27. $\frac{m^2}{\sqrt[3]{m}}$ | 28. $\sqrt[4]{49y^{22}}$ |