

Use the square root pattern to simplify higher roots

Date _____

Period _____

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Simplify. No Calculators. Show your work. Check your answers!

1) $\sqrt{20} = 2\sqrt{5}$

3) $\sqrt[3]{-750} = -5\sqrt[3]{6}$

5) $\sqrt[2]{147m^2n^3} = 7m\sqrt{3n}$

7) $\sqrt[3]{32u^7v} = 2u^2\sqrt[3]{4uv}$

9) $\sqrt[3]{16m^7n^8} = 2m^2n^2\sqrt[3]{2mn^2}$

11) $\sqrt[3]{250x^6y} = 5x^2\sqrt[3]{2y}$

13) $-\sqrt{175x^2y^4} = -5|xy^2|\sqrt{7}$

15) $-5\sqrt[3]{16a^4b^7} = -10ab^2\sqrt[3]{2ab}$

17) $-3\sqrt[3]{896h^6j^5k^9} = -6k^2\sqrt[3]{7h^6j^5k^2}$

19) $-8\sqrt[4]{567a^7b^2c^8} = -24ac^2\sqrt[4]{7a^3b^2}$

2) $\sqrt[5]{256} = 2\sqrt[5]{8}$

4) $\sqrt[4]{96} = 2\sqrt[4]{6}$

6) $\sqrt[3]{224x^8y^3} = 2x^2\sqrt[3]{7x^3y^3}$

8) $\sqrt[4]{80a^6b^8} = 2ab^2\sqrt[4]{5a^2}$

10) $\sqrt[3]{40u^7v^8} = 2u^2v^2\sqrt[3]{5uv^2}$

12) $\sqrt[3]{320u^6v^2} = 4u^2\sqrt[3]{5v^2}$

14) $8\sqrt[4]{48xy^7} = 16y\sqrt[4]{3xy^3}$

16) $-7\sqrt[5]{192xy^6} = -14y\sqrt[5]{6xy}$

18) $-5\sqrt[3]{-1000h^4j^5k} = 50hj\sqrt[3]{hj^2k}$

20) $6\sqrt[3]{-56x^8y^7z^6} = -12x^2y^2z^2\sqrt[3]{7x^2y}$