

Review #2

1. Evaluate $0.25^{\frac{1}{2}}$ without using a calculator.
2. Evaluate $(-27)^{\frac{1}{3}}$ without using a calculator.
3. Evaluate $\left(\frac{256}{625}\right)^{\frac{1}{4}}$ without using a calculator.
4. Evaluate $(-243)^{0.6}$.
6. Simplify $\frac{12p^3q^{-7}}{15pq^6}$. Write using powers with positive exponents.
7. Simplify $\left(\frac{36x^4y^3}{4x^6y^{-1}}\right)^{\frac{1}{2}}$.
8. Write $\sqrt{\left(\frac{3}{4}\right)^9}$ as a power.
9. Evaluate $0.16^{\frac{5}{2}}$.
10. Given that $6^{10} = 60466176$, what is 6^{-10} ?
11. Simplify $(64a^{12}b^{15})^{\frac{2}{3}}$.
12. Evaluate $\left(-\frac{8}{5}\right)^{\frac{7}{4}} \cdot \left(-\frac{8}{5}\right)^{\frac{1}{4}}$.
13. Evaluate $\frac{1.2^{\frac{1}{3}}}{1.2^{\frac{2}{3}}}$.

14. Evaluate $\frac{\left(a^{-\frac{7}{2}} b^{\frac{10}{3}}\right)}{\left(a^{-5} b^4\right)}$ for $a = 4$ and $b = 3$.

15. Write $\left(\frac{3}{4}\right)^{\frac{5}{6}}$ as a radical.

16. Write $\left(\sqrt[6]{0.9}\right)^7$ as a power.

17. Evaluate $(-64)^{\frac{2}{3}}$.

18. Arrange these numbers in order from least to greatest.

$12^{\frac{9}{7}}, \sqrt[6]{12^7}, 12^{\frac{1}{9}}, 12^{\frac{1}{7}}, \sqrt[7]{12^6}$

19. Evaluate $(-4)^{-4}$ without using a calculator.

20. Evaluate $\left(\frac{8}{27}\right)^{-\frac{2}{3}}$ without using a calculator.

21. Evaluate $81^{\frac{3}{4}}$ without using a calculator.

22. Evaluate $(0.4)^{\frac{3}{2}} \cdot (0.4)^{\frac{1}{3}} \cdot (0.4)^{\frac{7}{6}}$.

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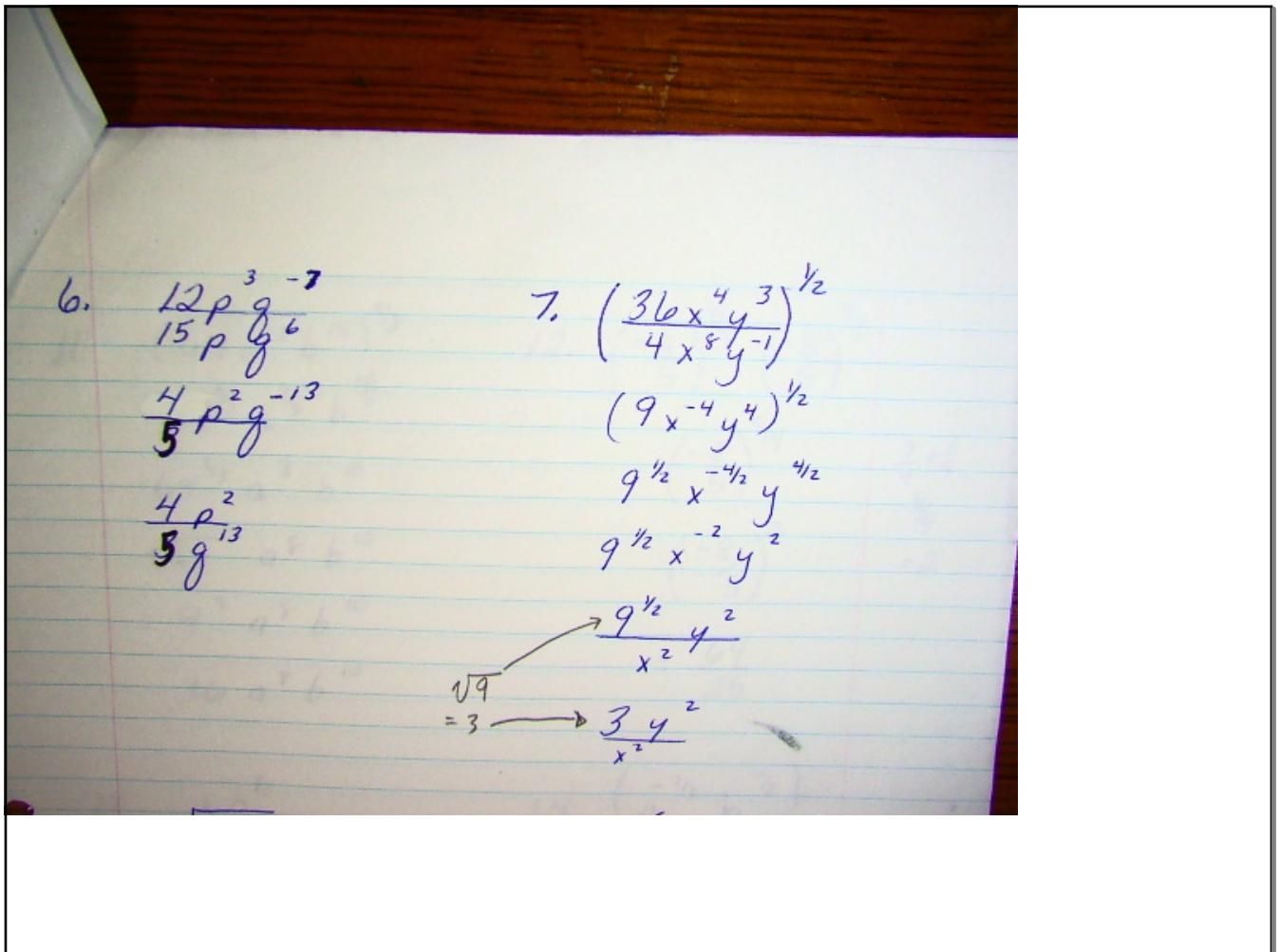
$$1. (0.25)^{\frac{1}{2}}$$
$$\sqrt{0.25}$$
$$0.5$$

$$2. (-27)^{\frac{1}{3}}$$
$$\sqrt[3]{-27}$$
$$-3$$

$$3. \left(\frac{256}{625}\right)^{\frac{1}{4}}$$
$$\sqrt[4]{\frac{256}{625}}$$
$$\frac{4}{5}$$

$$4. (-243)^{0.6}$$
$$(-243)^{\frac{6}{10}}$$
$$(-243)^{\frac{3}{5}}$$
$$\sqrt[5]{-243}^3$$
$$(3)^3$$
$$-27$$

$$5. \text{☺}$$



$$8. \sqrt{\left(\frac{3}{4}\right)^9}$$
$$\left(\frac{3}{4}\right)^{9/2}$$

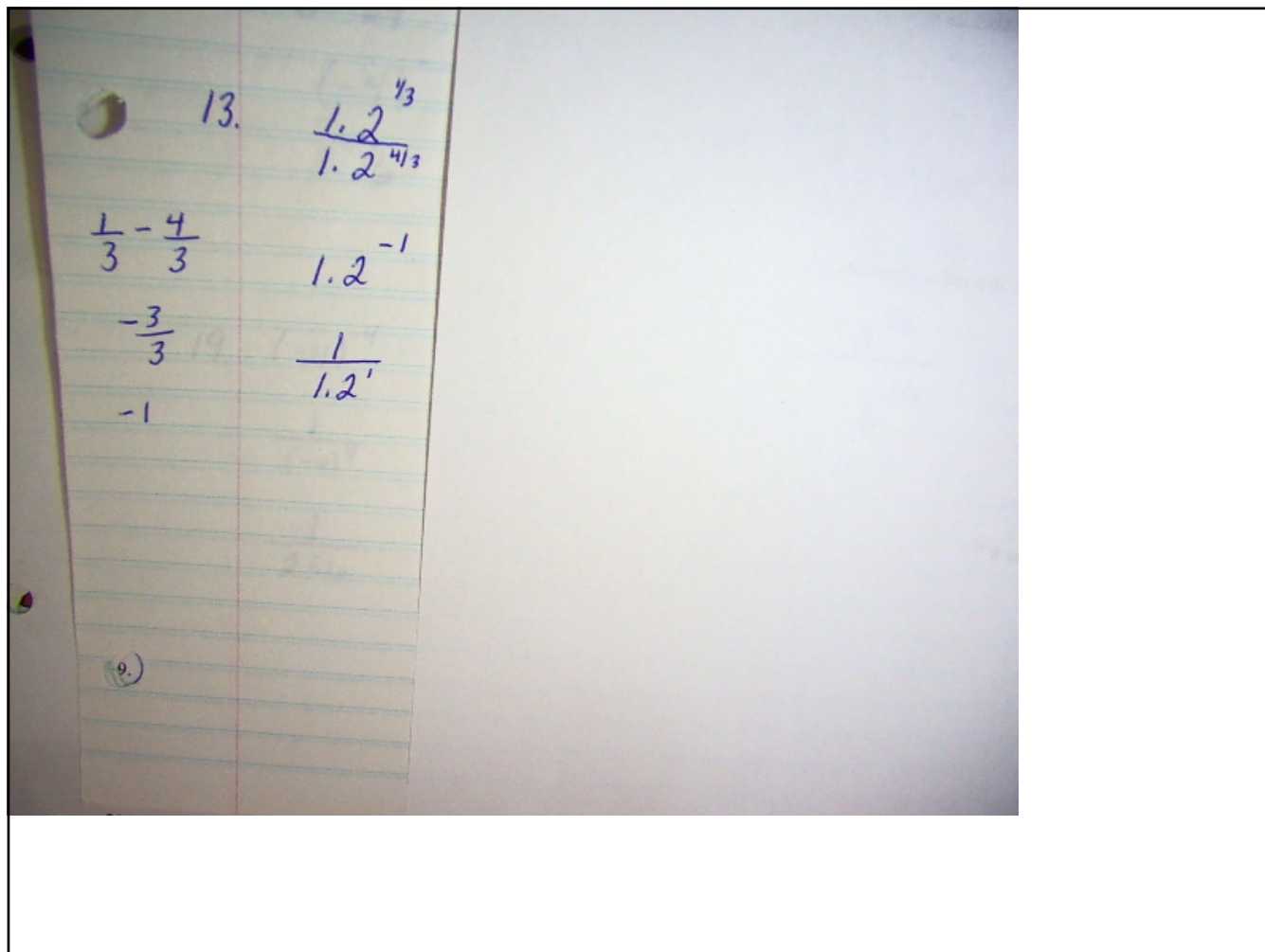
$$9. 0.16^{5/2}$$
$$(\sqrt{0.16})^5 \rightarrow \sqrt{\frac{16}{100}}^5$$
$$(0.4)^5 = \left(\frac{4}{10}\right)^5$$
$$0.01024 = \frac{1024}{100000}$$

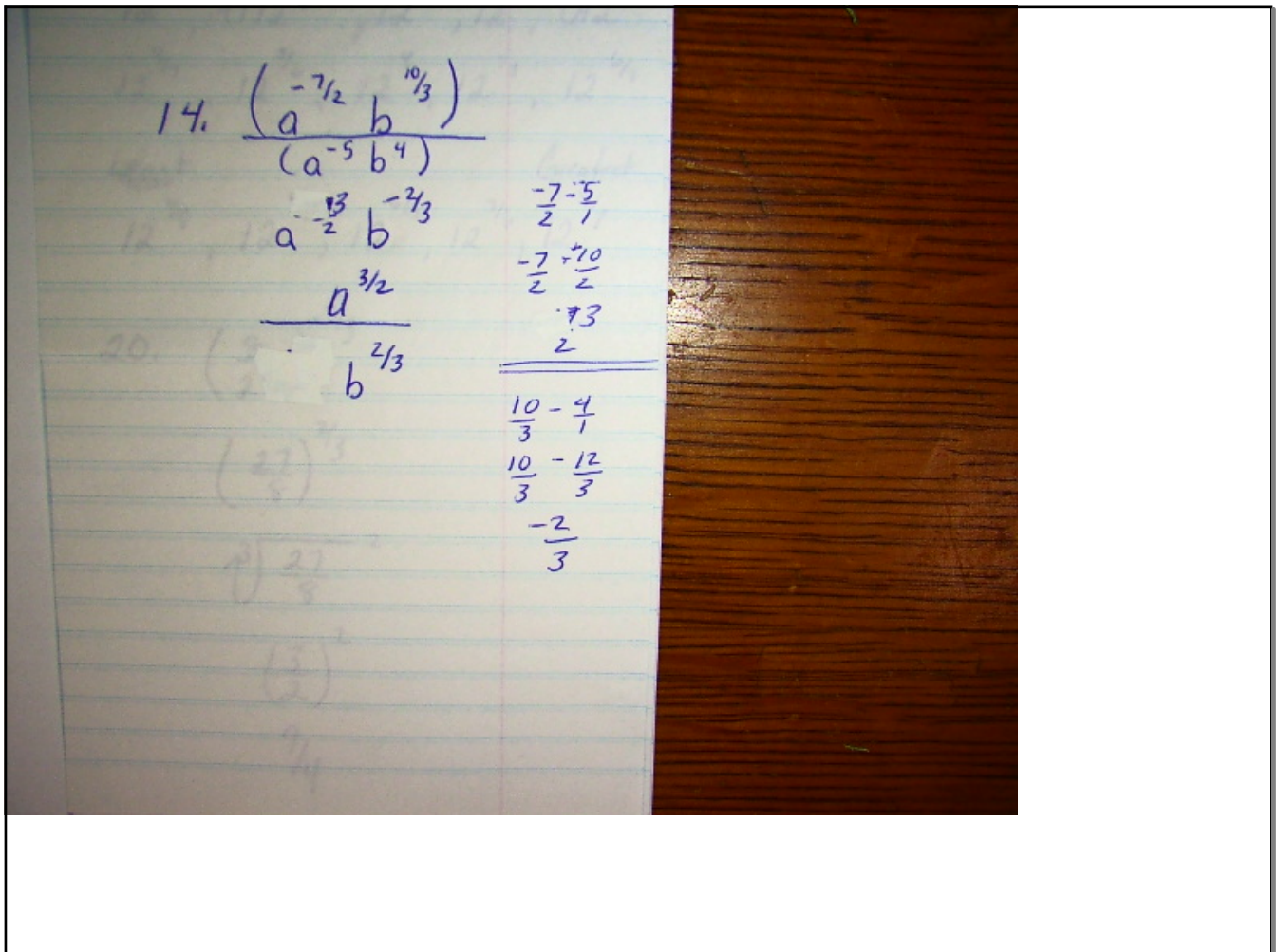
$$10. 6^{10} = 60466176$$

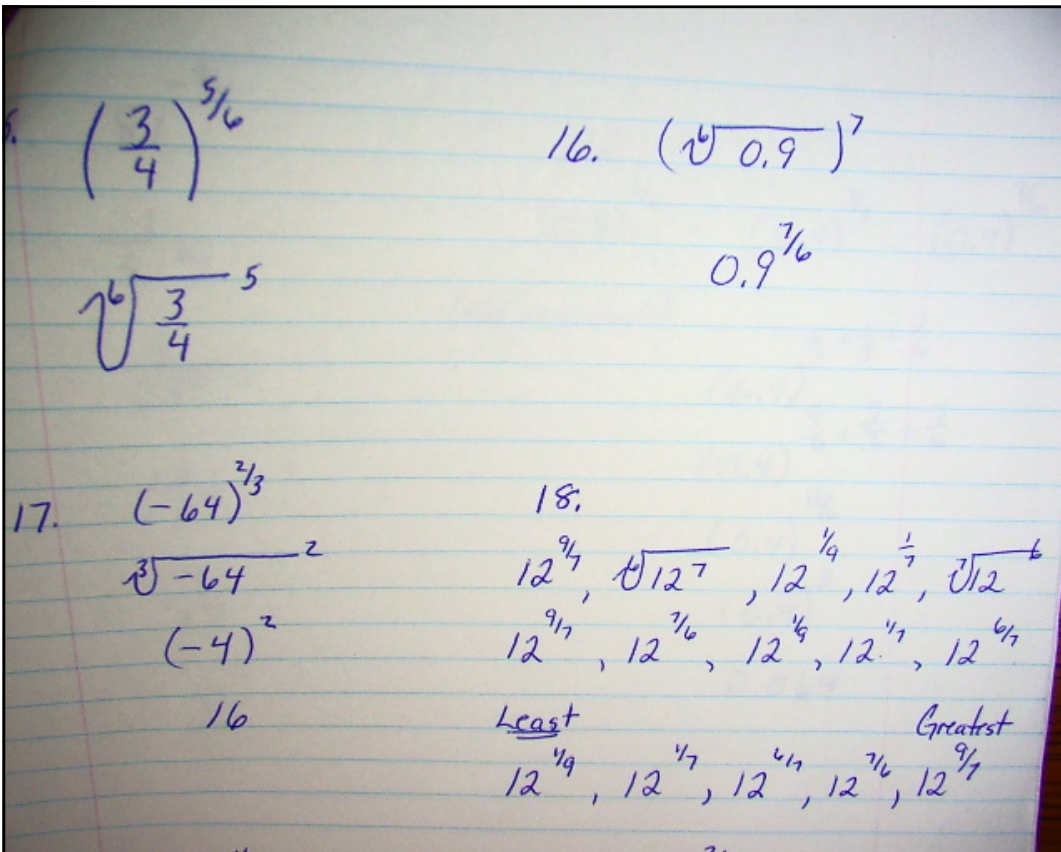
$$6^{-10} = \frac{1}{60466176}$$

$$\begin{aligned} 11. & (64a^{12}b^{15})^{2/3} \\ & 64^{2/3} a^{24/3} b^{30/3} \\ & 64^{2/3} a^8 b^{10} \\ & \sqrt[3]{64}^2 a^8 b^{10} \\ & 4^2 a^8 b^{10} \\ & 16 a^8 b^{10} \end{aligned}$$

$$\begin{aligned} 12. & \left(-\frac{8}{5}\right)^{3/4} \left(-\frac{8}{5}\right)^{1/4} \\ & \left(-\frac{8}{5}\right)^{3/4 + 1/4} \\ & \left(-\frac{8}{5}\right)^2 \\ & = \frac{64}{25} \end{aligned}$$







19. $(-4)^{-4}$

$$\frac{1}{(-4)^4}$$

$$\frac{-1}{256}$$

20. $\left(\frac{8}{27}\right)^{-2/3}$

$$\left(\frac{27}{8}\right)^{2/3}$$

$$\sqrt[3]{\frac{27}{8}}^2$$

$$\left(\frac{3}{2}\right)^2$$

$$9/4$$

$$21. \quad 81^{-3/4}$$

$$\frac{1}{81^{3/4}}$$

$$\frac{1}{\sqrt[4]{81^3}}$$

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

$$\frac{1}{27}$$

22.

$$(0.4)^{3/2} \cdot (0.4)^{1/3} \cdot (0.4)^{1/6}$$

(Add exponents)

$$\frac{3}{2} + \frac{1}{3} + \frac{1}{6}$$

$$(0.4)^{\frac{9}{6} + \frac{2}{6} + \frac{1}{6}}$$

$$(0.4)^{14/6}$$

$$(0.4)^3$$

$$0.064$$

Just
A
Few
Extra 😊

Properties of Exponents Name _____

Powers Date _____ Period _____

Simplify. Your answer should contain only positive exponents.

1) $\frac{(p^{-4})^4 \cdot p^2}{p}$

$$\frac{p^{16} p^2}{p}$$

$$\frac{p^{18}}{p^1}$$

$$p^{17}$$

2) $\left(\frac{2k^2 \cdot 2k^{-3}}{k^2}\right)^{-1}$

$$\left(\frac{2^2 k^{-1}}{k^2}\right)^{-1}$$

$$(2^2 k^{-3})^{-1}$$

$$\frac{2^{-1} k^3}{1} = \frac{k^3}{2^1}$$

$$3) \frac{x^{-4} \cdot 2x^{-2}}{(x^3)^4}$$

$$\frac{2x^{-6}}{x^{12}}$$

$$2x^{-18}$$

$$\frac{2}{x^{18}}$$

$$4) \frac{(3n^3)^2}{nm^{-1}}$$

$$\frac{3^2 n^6}{nm^{-1}}$$

$$\frac{3^2 n^5}{m^{-1}}$$

$$3^2 n^5 m^1$$

11) $\frac{(3n)^2}{n^4 \cdot n^{-2}}$

$$\frac{3^2 n^2}{n^2}$$

$$3^2 n^0$$

$$3^2$$

12) $\frac{x}{(x)^4 \cdot x^{-4}}$

$$\frac{x}{x^4 \cdot x^{-4}}$$

$$\frac{x}{x^0}$$

$$x$$

$$\begin{aligned} 13) \frac{a^{-4}(a^2)^3}{a^4} \\ \frac{a^{-4}(a^6)}{a^4} \\ \frac{a^2}{a^4} \\ a^{-2} \\ \frac{1}{a^2} \end{aligned}$$

$$\begin{aligned} 14) \frac{2v^3 \cdot v}{(v^2)^{-4}} \\ \frac{2v^4}{v^{-8}} \\ 2v^{12} \end{aligned}$$

15) $\frac{(x^{-2})^{-1}}{x \cdot 2x^4}$

$$\frac{x^2}{2x^5}$$

$$\frac{x^{-3}}{2}$$

$$\frac{1}{2x^3}$$

16) $\left(\frac{(3x^2)^2}{x^{-4} \cdot 3x^{-3}}\right)^{-2}$

$$\left(\frac{3^2 x^4}{3x^{-7}}\right)^{-2}$$

$$(3^{-1} x^{11})^{-2}$$

$$3^2 x^{-22}$$

$$\frac{3^2}{x^{22}}$$

-2