

Math Sheet

Name _____ Score _____ / 12 Teacher _____ Date _____

Power of Quotients

Apply the outer power to numerator and denominator.

1. $\left(\frac{2 \cdot y^6}{5 \cdot z^{-5}} \right)^5$

Domain: real variables $z \neq 0$

2. $\left(\frac{3 \cdot x^{-2}}{6 \cdot z^6} \right)^3$

Domain: real variables $x \neq 0$ $z \neq 0$

3. $\left(\frac{4 \cdot y^6}{4 \cdot z^{-1}} \right)^4$

Domain: real variables $z \neq 0$

4. $\left(\frac{2 \cdot x^{-4}}{7 \cdot z^5} \right)^4$

Domain: real variables $x \neq 0$ $z \neq 0$

5. $\left(\frac{3 \cdot y^2}{7 \cdot z^{-1}} \right)^3$

Domain: real variables $z \neq 0$

6. $\left(\frac{3 \cdot x^{-2}}{9 \cdot z^5} \right)^4$

Domain: real variables $x \neq 0$ $z \neq 0$

7. $\left(\frac{6 \cdot y^4}{7 \cdot z^{-3}} \right)^3$

Domain: real variables $z \neq 0$

8. $\left(\frac{1 \cdot x^{-5}}{4 \cdot z^5} \right)^5$

Domain: real variables $x \neq 0$ $z \neq 0$

9. $\left(\frac{3 \cdot y^4}{1 \cdot z^{-6}} \right)^2$

Domain: real variables $z \neq 0$

10. $\left(\frac{3 \cdot x^{-5}}{1 \cdot z} \right)^5$

Domain: real variables $x \neq 0$ $z \neq 0$

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Power of Quotients

Apply the outer power to numerator and denominator.

11. $\left(\frac{1 \cdot y^3}{5 \cdot z^{-4}} \right)^3$

Domain: real variables $z \neq 0$

12. $\left(\frac{3 \cdot x^{-2}}{6 \cdot z^3} \right)^3$

Domain: real variables $x \neq 0$ $z \neq 0$

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Power of Quotients

Answer Key

Apply the outer power to numerator and denominator.

1. $\left(\frac{2 \cdot y^6}{5 \cdot z^{-5}} \right)^5$

Domain: real variables $z \neq 0$

Work:

$$\frac{32 \cdot y^{30} \cdot z^{25}}{3125}$$

2. $\left(\frac{3 \cdot x^{-2}}{6 \cdot z^6} \right)^3$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{1}{8 \cdot x^6 \cdot z^{18}}$$

3. $\left(\frac{4 \cdot y^6}{4 \cdot z^{-1}} \right)^4$

Domain: real variables $z \neq 0$

Work:

$$y^{24} \cdot z^4$$

4. $\left(\frac{2 \cdot x^{-4}}{7 \cdot z^5} \right)^4$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{16}{2401 \cdot x^{16} \cdot z^{20}}$$

5. $\left(\frac{3 \cdot y^2}{7 \cdot z^{-1}} \right)^3$

Domain: real variables $z \neq 0$

Work:

$$\frac{27 \cdot y^6 \cdot z^3}{343}$$

6. $\left(\frac{3 \cdot x^{-2}}{9 \cdot z^5} \right)^4$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{1}{81 \cdot x^8 \cdot z^{20}}$$

7. $\left(\frac{6 \cdot y^4}{7 \cdot z^{-3}} \right)^3$

Domain: real variables $z \neq 0$

Work:

$$\frac{216 \cdot y^{12} \cdot z^9}{343}$$

8. $\left(\frac{1 \cdot x^{-5}}{4 \cdot z^5} \right)^5$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{1}{1024 \cdot x^{25} \cdot z^{25}}$$

9. $\left(\frac{3 \cdot y^4}{1 \cdot z^{-6}} \right)^2$

Domain: real variables $z \neq 0$

Work:

$$9 \cdot y^8 \cdot z^{12}$$

10. $\left(\frac{3 \cdot x^{-5}}{1 \cdot z} \right)^5$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{243}{x^{25} \cdot z^5}$$

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Answer Key

Apply the outer power to numerator and denominator.

11. $\left(\frac{1 \cdot y^3}{5 \cdot z^{-4}} \right)^3$

Domain: real variables $z \neq 0$

Work:

$$\frac{y^9 \cdot z^{12}}{125}$$

12. $\left(\frac{3 \cdot x^{-2}}{6 \cdot z^3} \right)^3$

Domain: real variables $x \neq 0$ $z \neq 0$

Work:

$$\frac{1}{8 \cdot x^6 \cdot z^9}$$