

Math Sheet

Name _____ Score _____ / 12 Teacher _____ Date _____

Product and Quotient Powers

Apply outer powers to products and quotients.

1. 3^3

2. $\left(\frac{8 \cdot x^{-2}}{7 \cdot z^6} \right)^4$

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

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

Domain: real variables $z \neq 0$

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

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

5. $\left(7 \cdot y^6 \right)^4$

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

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

7. 4^3

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

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

9. $\left(5 \cdot y^6 \cdot z^{-1} \right)^3$

Domain: real variables $z \neq 0$

10. $\left(\frac{3 \cdot x^{-6}}{1 \cdot z^2} \right)^5$

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

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Product and Quotient Powers

Apply outer powers to products and quotients.

11. $(8 \cdot y^5)^3$

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

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

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Product and Quotient Powers

Answer Key

Apply outer powers to products and quotients.

1. 3^3

Work:
 27

2. $\left(\frac{8 \cdot x^{-2}}{7 \cdot z^6} \right)^4$

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

Work:
$$\frac{4096}{2401 \cdot x^8 \cdot z^{24}}$$

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

Domain: real variables $z \neq 0$

Work:
$$\frac{125 \cdot y^3}{z^9}$$

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

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

Work:
$$\frac{32}{16807 \cdot x^{10} \cdot z^{10}}$$

5. $\left(7 \cdot y^6 \right)^4$

Work:
 $2401 \cdot y^{24}$

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

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

Work:
$$\frac{1}{243 \cdot x^{30} \cdot z^{30}}$$

7. 4^3

Work:
 64

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

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

Work:
$$\frac{1}{216 \cdot x^{12} \cdot z^3}$$

9. $\left(5 \cdot y^6 \cdot z^{-1} \right)^3$

Domain: real variables $z \neq 0$

Work:
$$\frac{125 \cdot y^{18}}{z^3}$$

10. $\left(\frac{3 \cdot x^{-6}}{1 \cdot z^2} \right)^5$

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

Work:
$$\frac{243}{x^{30} \cdot z^{10}}$$

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Product and Quotient Powers

Answer Key

Apply outer powers to products and quotients.

11. $(8 \cdot y^5)^3$

Work:

$$512 \cdot y^{15}$$

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

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

Work:

$$\frac{125}{64 \cdot x^{15} \cdot z^3}$$