Topic 4: Simplify by using the laws of exponents for real numbers and variables

Simplify each expression and write without negative exponents.

1. $\dfrac{5^{-1}z}{x^{-1}y^{-1}}$

2. $\left(2x^4y^7\right)\left(4x^3y^{-5}\right)$

3. $\dfrac{6x^{-2}y^3z^{-2}}{-2x^4y}$

4. $\left(-4x^{-3}y^5\right)^{-3}$

5. $\left(\dfrac{x^6y^{-2}}{x^{-2}y^3}\right)^2$

6. $\dfrac{\left(3x^{-4}y^2\right)^3}{\left(4x^2y^3\right)^2}$

7. $\dfrac{\left(2xy^2z^{-3}\right)^2}{\left(3x^{-1}yz^2\right)^{-1}}$

Answers

1. $\dfrac{xyz}{5}$

2. $8x^7y^2$

3. $-\dfrac{3y^2}{x^6z^2}$

4. $\dfrac{-x^9}{64y^{15}}$

5. $\dfrac{x^{16}}{y^{10}}$

6. $\dfrac{27}{16x^{16}}$

7. $\dfrac{12xy^5}{z^4}$