Name:

6.1 Properties of Exponents

**Identify the exponent property used in each step of the problem.**

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| 1.) |

|  |  |
| --- | --- |
| $$x^{6}(x^{-2}y)^{3}$$ | Given |
| $$x^{6}(x^{-2})^{3}y^{3}$$ |  |
| $$x^{6}x^{-6}y^{3}$$ |  |
| $$x^{0}y^{3}$$ |  |
| $$y^{3}$$ |  |

 | 2.) |

|  |  |
| --- | --- |
| $$x^{6}(x^{-2}y)^{3}$$ | Given |
| $$x^{6}\left(\frac{1}{x^{2}}y\right)^{3}$$ |  |
| $$x^{6}\left(\frac{y}{x^{2}}\right)^{3}$$ | Fraction Multiplication |
| $$x^{6}\frac{y^{3}}{(x^{2})^{3}}$$ |  |
| $$x^{6}\frac{y^{3}}{x^{6}}$$ |  |
| $$\frac{x^{6}y^{3}}{x^{6}}$$ | Fraction Multiplication |
| $$x^{0}y^{3}$$ |  |
| $$y^{3}$$ |  |

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| 3.) |

|  |  |
| --- | --- |
| $$\frac{x^{2}y^{-2}}{x^{-1}y}$$ | Given |
| $$\frac{x^{2}}{x^{-1}}·\frac{y^{-2}}{y}$$ | Fraction Multiplication |
| $$x^{3}·y^{-3}$$ |  |
| $$x^{3}·\frac{1}{y^{3}}$$ |  |
| $$\frac{x^{3}}{y^{3}}$$ | Fraction Multiplication |

 | 4.) |

|  |  |
| --- | --- |
| $$\frac{3x^{6}y^{-1}}{x^{3}}·\frac{2x^{2}}{9y}$$ | Given |
| $$\frac{3x^{6}y^{-1}2x^{2}}{x^{3}9y}$$ | Fraction Multiplication |
| $$\frac{6x^{6}x^{2}y^{-1}}{9x^{3}y}$$ | Multiplication |
| $$\frac{6x^{8}y^{-1}}{9x^{3}y}$$ |  |
| $$\frac{6}{9}·\frac{x^{8}}{x^{3}}·\frac{y^{-1}}{y}$$ | Fraction Multiplication |
| $$\frac{6}{9}·x^{5}·y^{-2}$$ |  |
| $$\frac{6}{9}·x^{5}·\frac{1}{y^{2}}$$ |  |
| $$\frac{2}{3}·x^{5}·\frac{1}{y^{2}}$$ | Simplify Fraction |
| $$\frac{2x^{5}}{3y^{2}}$$ | Fraction Multiplication |

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