

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

**WS 10D.1 - Negative and Zero Exponents**#1-3, Evaluate each expression for  $a = -2$ ,  $b = 3$ ,  $c = -5$ .

1.  $(a^2c)^3$

2.  $(-a^2b^3c^3)^2$

3.  $(a^2c)^{-3}$

#4-12, Simplify. Answers must not contain zero or negative exponents.

4.  $w^0y^2z^{-1}$

5.  $(-x^{-3}y^4)^2$

6.  $(xy^2z^0)^3(x^{-5}y^{-2}z^{-8})^2$

7.  $\frac{-3a^3b^{-5}}{-9a^{-3}b^9}$

8.  $\frac{-2d^{-8}e^{-4}}{6d^{-10}e^{-1}}$

$$9. \frac{(2r^2)^3 8r^6}{4r^{-3}}$$

$$10. \left[ \frac{(a^3 b^5)^2}{a^5 b^2} \right]^{-1}$$

$$11. \left( \frac{z^{-3}}{4t} \right)^{-3} \left( \frac{5t}{z^{-7}} \right)^{-2}$$

$$12. \left[ \left( \frac{x^5 y^2}{x^{-3} y} \right)^{-2} \left( \frac{y^{-3}}{2x^5} \right)^3 \right]^{-1}$$