

Simplify:

1. 
$$\left[ 8^{-\frac{4}{3}} \div 2^{-2} \right]^{\frac{1}{2}}$$

2. 
$$(3x^2)^{-3} \times (x^9)^{\frac{2}{3}}$$

3. 
$$(3^2)^0 + 3^{-4} \times 3^6 + \left(\frac{1}{3}\right)^{-2}$$

4. 
$$9^{5/2} - 3 \cdot (5)^0 - \left(\frac{1}{81}\right)^{-1/2}$$

5. 
$$16^{3/4} + 2 \left(\frac{1}{2}\right)^{-1} (3)^0$$

6. 
$$\left[ (64)^{\frac{2}{3}} \cdot 2^{-2} \div 8^0 \right]^{-1/2}$$

7. 
$$(a^{-1} + b^{-1}) \div (a^{-2} - b^{-2})$$

8. 
$$\left(\frac{81}{16}\right)^{-\frac{3}{4}} \times \left[ \left(\frac{25}{9}\right)^{-\frac{3}{2}} \div \left(\frac{5}{2}\right)^{-3} \right]$$