A2.A.8: Negative and Fractional Exponents: Apply the rules of exponents to simplify expressions involving negative and/or fractional exponents

1 The expression $8^{-4} \cdot 8^{6}$ is equivalent to
1) 8^{-24}
2) 8^{-2}
3) 8^{2}
4) 8^{10}

2 The expression $(3c)^{-2}$ is equivalent to
1) $-6c^{2}$
2) $\frac{1}{3c^{2}}$
3) $\frac{1}{9c^{2}}$
4) $\frac{3}{c^{2}}$

3 The expression $(2a)^{-4}$ is equivalent to
1) $-8a^{4}$
2) $\frac{16}{a^{4}}$
3) $-\frac{2}{a^{4}}$
4) $\frac{1}{16a^{4}}$

4 Which expression is equivalent to $\left(3x^{2}\right)^{-1}$?
1) $\frac{1}{3x^{2}}$
2) $-3x^{2}$
3) $\frac{1}{9x^{2}}$
4) $-9x^{2}$

5 When simplified, the expression $\left(\frac{w^{-5}}{w^{-9}}\right)^{\frac{1}{2}}$ is equivalent to
1) w^{-7}
2) w^{2}
3) w^{7}
4) w^{14}

6 Which expression is equivalent to $\left(9x^{2}y^{6}\right)^{-\frac{1}{2}}$?
1) $\frac{1}{3xy^{3}}$
2) $3xy^{3}$
3) $\frac{3}{xy^{3}}$
4) $\frac{xy^{3}}{3}$

7 Simplify the expression $\left(m^{6}\right)^{-\frac{2}{3}}$ and write your answer using a positive exponent.

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Answer Section

1 ANS: 3 REF: 010413a
2 ANS: 3 REF: 060826a
3 ANS: 4 REF: 061402a2
4 ANS: 1 REF: 011402a2
5 ANS: 2

$$\left(\frac{w^{-5}}{w^{-9}}\right)^{\frac{1}{2}} = (w^4)^{\frac{1}{2}} = w^2$$

REF: 081011a2
6 ANS: 1 REF: 011306a2
7 ANS:

$$\frac{1}{m^4}$$

REF: 010824b