

### Working With Fractions and Exponents

**Question 1.** Simplify the following fractions as much as possible.

- |                    |                      |
|--------------------|----------------------|
| a) $\frac{6}{3}$   | d) $\frac{400}{500}$ |
| b) $\frac{20}{30}$ | e) $-\frac{40}{100}$ |
| c) $-\frac{3}{15}$ | f) $\frac{14}{21}$   |

**Question 2.** Convert the following improper fractions to mixed numbers.

- |                    |                  |
|--------------------|------------------|
| a) $\frac{3}{2}$   | d) $\frac{5}{2}$ |
| b) $-\frac{10}{5}$ | e) $\frac{7}{5}$ |
| c) $-\frac{20}{3}$ |                  |

**Question 3.** Convert the following mixed numbers to improper fractions.

- |                    |                    |
|--------------------|--------------------|
| a) $3\frac{1}{2}$  | d) $4\frac{1}{4}$  |
| b) $2\frac{1}{3}$  | e) $5\frac{1}{10}$ |
| c) $-2\frac{1}{9}$ |                    |

**Question 4.** Perform the following operations.

- |                                      |   |
|--------------------------------------|---|
| a) $\frac{1}{2} \times \frac{1}{3}$  | d) $\frac{1}{4} \div \frac{1}{3}$               |
| b) $\frac{2}{5} \times \frac{3}{7}$  | e) $\frac{3}{8} \div \left(-\frac{6}{7}\right)$ |
| c) $-\frac{1}{8} \times \frac{2}{9}$ | f) $\frac{1}{5} \div 4$                         |

**Question 5.** Write the following sets of fractions with their least common denominator.

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|--------------------------------|-----------------------------------|
| a) $\frac{1}{2}, \frac{1}{3}$  | d) $-\frac{1}{10}, \frac{3}{25}$  |
| b) $\frac{1}{5}, \frac{1}{4}$  | e) $-\frac{13}{100}, \frac{2}{5}$ |
| c) $\frac{3}{4}, -\frac{5}{6}$ |                                   |

**Question 6.** Perform the following operations.

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|--------------------------------|---------------------------------|
| a) $\frac{1}{2} + \frac{1}{5}$ | d) $-\frac{3}{7} + \frac{2}{3}$ |
| b) $\frac{3}{4} + \frac{1}{2}$ | e) $2 - \frac{1}{5}$            |
| c) $\frac{2}{5} - 1$           | f) $-\frac{3}{8} - \frac{3}{4}$ |

**Question 7.** Write the following numbers in scientific notation.

- |            |              |
|------------|--------------|
| a) 1,000   | e) 0.0000230 |
| b) 0.001   | f) 1,000,130 |
| c) 239,861 | g) 0.3       |
| d) 1,023   |              |

**Question 8.** Simplify the following expressions as much as possible using exponents.

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|---|--------------------------|
| a) $5^2 \times 5^4$                                 | e) $\frac{6^4}{6^{-10}}$ |
| b) $3^4 \times 3^{-7}$                              | f) $(xy)^2$              |
| c) $\frac{2^8 \times 3^{-2} \times 2^{-2}}{3^{-5}}$ | g) $(2 \times 5)^3$      |
| d) $\frac{10 \times 10 \times 10}{10}$              |                          |

You can check your answers on pages 267-268.