

Multiplying & Dividing Rational Numbers

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11:29 AM

Mathematics 9
Rational Numbers
Multiplying & Dividing Rational Numbers

Multiplying Integers
Signs same = positive
Signs different = negative

A. Multiplying Rational Numbers

Remember that when we multiply basic fractions we multiply across the numerators (top) and multiply across the denominators (bottoms). Cross reducing may be useful, particularly if you are dealing with very large fractions. **Remember to pay particular attention signs and to the integer rules when working with the numbers.**

$$\left(-\frac{1}{4}\right) \times \left(-\frac{2}{3}\right)$$

$$= \frac{1}{6}$$

$$\frac{5}{8} \times \left(-\frac{6}{25}\right)$$

$$= -\frac{3}{20}$$

B. Dividing Rational Numbers

Remember the KFC rule to change the division question into a multiplication question. Then just follow basic rules of multiplying fractions. **Remember to pay particular attention signs and to the integer rules when working with the numbers.**

K - Keep first fraction
 F - Flip second fraction
 C - Change divide to multiply

$$\left(-\frac{3}{4}\right) \div \frac{3}{5}$$

$$-\frac{3}{4} \times \frac{5}{3}$$

$$= \boxed{-\frac{5}{4} \text{ or } -1\frac{1}{4}}$$

$$\left(\frac{6}{-15}\right) \div \left(\frac{8}{-12}\right)$$

$$-\frac{6}{15} \div -\frac{8}{12}$$

$$-\frac{6}{15} \times -\frac{12}{8}$$

$$= \frac{12 \div 4}{20 \div 4} = \boxed{\frac{3}{5}}$$

C. Practice Questions

1) $\frac{5}{6} \div \frac{4}{5}$

$$= \boxed{\frac{2}{3}}$$

2) $\frac{15}{16} \div \left(\frac{9}{-10}\right)$

$$\frac{15}{16} \div -\frac{9}{10}$$

$$\frac{15}{16} \times -\frac{10}{9}$$

$$= \boxed{-\frac{25}{24} \text{ or } -1\frac{1}{24}}$$

3) $\left(-\frac{8}{10}\right) \div \left(\frac{-6}{-15}\right)$

$$-\frac{8}{10} \div \frac{6}{15}$$

$$-\frac{8}{10} \times \frac{15}{6}$$

$$= -\frac{12}{6} = \boxed{-2}$$

Assignment: Multiplying & Dividing Rational Numbers Assignment

Name: _____

Multiplying & Dividing Rational Numbers

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

2. $\frac{5}{8} \times \frac{10}{15}$

3. $\left(-\frac{3}{8}\right) \div \left(-\frac{9}{10}\right)$

4. $\left(-\frac{7}{9}\right) \div \frac{5}{6}$

5. $\left(\frac{-4}{-6}\right) \times \left(\frac{-9}{10}\right)$

6. $\left(-\frac{7}{27}\right) \div \left(\frac{14}{-15}\right)$

7. $\left(\frac{5}{-8}\right) \div \frac{4}{5}$

8. $\left(\frac{-24}{-25}\right) \times \left(\frac{-10}{-15}\right)$

$$9. \left(\frac{-5}{-8}\right) \div \frac{10}{12}$$

$$10. \frac{16}{25} \times \frac{15}{18}$$

$$11. \left(-\frac{10}{11}\right) \times \left(\frac{-22}{35}\right)$$

$$12. \frac{12}{45} \div \frac{8}{18}$$

$$13. \left(\frac{-15}{-18}\right) \div \frac{20}{21}$$

$$14. \frac{5}{12} \times \frac{6}{16}$$

$$15. \frac{4}{5} \times \left(\frac{10}{-18}\right)$$

$$16. \left(\frac{-6}{9}\right) \div \left(\frac{-12}{-18}\right)$$

$$17. \left(\frac{-12}{-8}\right) \times \left(\frac{-4}{-10}\right)$$

$$18. \left(-\frac{16}{18}\right) \div \left(\frac{20}{-8}\right)$$

Answers

1) $-\frac{1}{2}$

2) $\frac{5}{12}$

3) $\frac{5}{12}$

4) $-\frac{14}{15}$

5) $-\frac{3}{5}$

6) $\frac{5}{18}$

7) $-\frac{25}{32}$

8) $\frac{16}{25}$

9) $\frac{3}{4}$

10) $\frac{8}{15}$

11) $\frac{4}{7}$

12) $\frac{3}{5}$

13) $\frac{7}{8}$

14) $\frac{5}{32}$

15) $-\frac{4}{9}$

16) -1

17) $\frac{3}{5}$

18) $\frac{16}{45}$