Multiplying & Dividing Rational Numbers Part 2

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Mathematics 9
Rational Numbers
Multiplying & Dividing Rational Numbers Part 2

Multiplying
Signs Same = Positive
Signs Different = Negative

A. Multiplying Rational Numbers Continued

It is generally easiest if you change the Mixed Numbers into Improper Fractions before beginning to multiply. **Remember to pay particular attention signs and to the integer rules when working with the numbers.**

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

$$-\frac{5}{\cancel{4}_{2}}\times\frac{\cancel{2}^{1}}{3}$$

$$=\boxed{\frac{5}{6}}$$

$$2\frac{2}{3}\times\left(-1\frac{1}{6}\right)$$

$$\frac{\cancel{8}^{4}}{3}\times\frac{7}{\cancel{6}_{3}}$$

$$=\boxed{-\frac{28}{9}\text{ or }-3\frac{1}{9}}$$

B. Dividing Rational Numbers

It is generally easiest if you change the Mixed Numbers into Improper Fractions before beginning to divide. 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.**

$$\left(-2\frac{3}{4}\right)\div\frac{4}{5}$$

$$-\frac{11}{4}\div\frac{4}{5}$$

$$-\frac{11}{4}\times\frac{5}{4} = \boxed{-\frac{55}{16} \text{ or } -3\frac{7}{16}}$$

$$3\frac{1}{5}\div\left(-2\frac{3}{6}\right)$$

$$\frac{16}{5}\div-\frac{15}{6}$$

$$\frac{16}{5}\times-\frac{6}{15} = -\frac{96}{75} = \boxed{-\frac{32}{23} \text{ or } -1\frac{9}{23}}$$

3 × 16 = 96

2 × 15 = 75

C. Practice Questions

1) $\left(-1\frac{1}{2}\right)\times\frac{4}{5}$

$$-\frac{3}{2}\times\frac{4}{5}$$

$$= \boxed{-\frac{6}{5} \text{ or } -1\frac{1}{5}}$$

2) $\left(-2\frac{1}{3}\right)\div\left(-\frac{9}{12}\right)$

$$-\frac{7}{3}\div-\frac{9}{12}$$

$$-\frac{7}{3}\times-\frac{12}{9}$$

$$= \boxed{\frac{28}{9} \text{ or } 3\frac{1}{9}}$$

3) $2\frac{2}{3}\times1\frac{1}{4}$

$$\frac{8}{3}\times\frac{5}{4}$$

$$= \boxed{\frac{10}{3} \text{ or } 3\frac{1}{3}}$$

Assignment: Multiplying & Dividing Rational Numbers Part 2 Assignment

Name:_____

Multiplying & Dividing Rational Numbers Part 2

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

2. $\left(-\frac{5}{8}\right)\times 1\frac{1}{5}$

3. $\left(-1\frac{1}{8}\right)\div\left(-1\frac{1}{3}\right)$

4. $\left(-\frac{8}{9}\right)\div 2\frac{1}{2}$

5. $2\frac{3}{6}\times\frac{8}{9}$

6. $\left(-1\frac{4}{5}\right)\div\left(-2\frac{2}{5}\right)$

7. $2\frac{1}{2}\div\left(-3\frac{1}{4}\right)$

8. $\left(-3\frac{1}{5}\right)\times 2\frac{1}{4}$

9. $\left(-1\frac{5}{8}\right) \div 2\frac{1}{8}$

10. $4\frac{1}{2} \times 3\frac{1}{3}$

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

12. $3\frac{3}{5} \div \left(-1\frac{3}{7}\right)$

13. $\left(-\frac{9}{11}\right) \div 3\frac{3}{4}$

14. $4\frac{5}{6} \times \frac{6}{15}$

15. $2\frac{4}{5} \times \left(-1\frac{1}{4}\right)$

16. $\left(-5\frac{1}{2}\right) \div \left(-2\frac{5}{6}\right)$

Answers

1. $-\frac{1}{2}$
2. $-\frac{3}{4}$
3. $\frac{27}{32}$
4. $-\frac{16}{45}$
5. $\frac{20}{9}$
6. $\frac{3}{4}$
7. $-\frac{10}{13}$
8. $-\frac{36}{5}$
9. $-\frac{13}{17}$
10. 15
11. $\frac{35}{4}$
12. $-\frac{63}{25}$
13. $-\frac{12}{55}$
14. $\frac{29}{15}$
15. $-\frac{7}{2}$
16. $\frac{33}{17}$