

Chapter 9  
9.1-Rational Fractions

Rational Fractions are numbers that can be written as the quotient of two numbers.

1. Write in simplest form→ no improper fractions and reduce to lowest possible fraction.
2. Comparing

EX  $5/4$ → how many times does 4 go into 5?

- 1 but we have 1 left over so our answer is  $1 \frac{1}{4}$

Ex  $6/8$ → that is a proper fraction but can be reduced

- What number goes into both 6 and 8? → 2
- $6/8$ →  $3/4$

Which is greater  $1 \frac{1}{4}$  or  $\frac{3}{4}$  ?

- $1 \frac{1}{4} > \frac{3}{4}$

Helpful notes. Remember to pay attention to positive and negative signs. When reducing or simplifying keep signs the same. And when comparing remember positive numbers are bigger than negative

HOMEWORK- book page 225: 5-58

## 9.2- Making fraction decimals

1. Change fraction into decimal by dividing bottom into top

a. Example  $\frac{1}{2} = .5$

Change a decimal into a fraction by placing number over its decimal place

. Example .6 the six is in the tenths place so you would put  $\frac{6}{10}$

a. Make sure to reduce fraction if needed

### Examples

- $-\frac{3}{4}$  into a decimal
  - 4 divided into -3 =  $-.75$
- $-.75$  into fraction
  - .75 is in the hundredths place so  $-\frac{75}{100}$
  - Reduce fraction to  $-\frac{3}{4}$  because 25 goes into both 75 and 100.

Helpful notes. Remember to be paying attention to signs!! Make sure signs are consistent!!

HOMEWORK- Book page 227 2-48

## 9.3-Adding Fractions

1. When adding fractions make sure that there are common denominators!!
  - a. If there isnt, make them!  
Remember our adding rules for integers
    - . Positive + positive = positive
    - a. Negative + negative = negative
    - b. Positive + negative = depends on which one is bigger!

### Example

- $\frac{3}{5} + -\frac{2}{5} = \frac{1}{5}$ 
  - Because we have one positive and one negative we have to subtract.  $3-2=1$ . The sign is determined off the larger number. 3 is bigger than 2 and 3 is positive in the problem so our answer is positive
  
- $-\frac{1}{2} + -\frac{1}{3}$ 
  - We need to make common denominators
  - $-\frac{3}{6} + -\frac{2}{6}$
  - Add together to get  $-\frac{5}{6}$

HOMEWORK- Book page 229: 1-24

### 9.3 Part 2- Subtracting Fractions

1. Make sure we have common denominators
2. Remember our subtracting integers rules
  - a.  $P-P=P$
  - b.  $N-N=N$
  - c.  $P-N$  (minus minus makes plus)= add the fractions
  - d.  $N-P=N$

#### Examples

$$\begin{aligned} -\frac{5}{6} - \frac{1}{6} &= -\frac{6}{6} = -1 \\ - -5-1 &= -6 \end{aligned}$$

$$-\frac{2}{3} - \frac{1}{4} \rightarrow \text{make common denominator}$$

- $-\frac{8}{12} - \frac{3}{12} = -\frac{11}{12}$

$$-\frac{5}{8} - -\frac{1}{2} \rightarrow \text{minus minus makes plus so the problem now is } -\frac{5}{8} + \frac{1}{2}$$

- Make common denominator
- Follow addition rules now
- $-\frac{5}{8} + \frac{4}{8} = -\frac{1}{8}$

HOMEWORK- Book page 229, #26-40

## 9.4 notes- multiplying and dividing fractions

1. To multiply fractions we just go straight across

a. Make sure you don't have mixed number fractions. Make them improper if you need to

To divide, we flip the second fraction and multiply.

Same as multiplying we can't have mixed number fractions. Only proper and improper.

Multiplying rules

- .  $P \times P = P$
- a.  $N \times N = P$
- b.  $N \times P = N$
- c.  $P \times N = N$

### Examples

$$2\frac{1}{2} \times -3\frac{1}{4}$$

- First we need to make these improper. Multiply bottom times whole number and then add the top

$$5/2 \times -13/4$$

- Now we just multiply straight across.

-65/8 is the answer. Reduce if possible.

$$-3\frac{1}{2} \text{ dividing } -2\frac{1}{2}$$

- make improper and flip the second one and multiple

$$-7/2 \times -2/5$$

- multiply straight across

-7/5 is the answer.

Homework- book page 231, # 7-36

Name \_\_\_\_\_

1. What are rational numbers?

\_\_\_\_\_

Write each rational number in simplest fractional form.

2.  $\frac{-16}{4}$

\_\_\_\_\_

3.  $\frac{-21}{6}$

\_\_\_\_\_

4.  $\frac{-16}{24}$

\_\_\_\_\_

<, >, or =?

5.  $-3$  \_\_\_  $2$

\_\_\_\_\_

6.  $-\frac{5}{7}$  \_\_\_  $-\frac{7}{10}$

\_\_\_\_\_

7.  $-\frac{1}{5}$  \_\_\_  $\frac{1}{6}$

\_\_\_\_\_

**Write in decimal form.**

8.  $\frac{-1}{4}$

---

9.  $\frac{11}{6}$

---

10.  $\frac{-3}{8}$

---

**Write in simplest fractional form.**

11. .6

---

12. -.48

---

13. -4.7

---

**Give each sum or difference in simplest form.**

$$14. \frac{-2}{7} + \frac{-5}{7}$$

---

$$15. \frac{-1}{2} + \frac{3}{5}$$

---

$$16. \frac{1}{2} + \frac{-1}{3}$$

---

$$17. \frac{1}{6} - \frac{-1}{8}$$

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$$18. \frac{-7}{8} - \frac{1}{5}$$

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$$19. \frac{1}{7} - \frac{2}{3}$$

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**Give each product or quotient in simplest form.**

$$20. \frac{-5}{7} \cdot \frac{14}{35}$$

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$$21. \frac{-3}{7} \cdot \frac{-1}{5}$$

---

$$22. 2\frac{1}{4} \cdot -2\frac{5}{9}$$

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$$23. 9876\frac{1234}{5678} \div 9876\frac{1234}{5678}$$

---

$$24. \frac{-1}{2} \div -5$$

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$$25. -5\frac{1}{4} \div 4\frac{3}{4}$$

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Name \_\_\_\_\_

1. What are rational numbers?

---

Write each rational number in simplest fractional form.

2.  $\frac{-8}{4}$

\_\_\_\_\_

3.  $\frac{-9}{6}$

\_\_\_\_\_

4.  $\frac{-18}{24}$

\_\_\_\_\_

<, >, or =?

5.  $-8$  \_\_\_\_\_  $6$

\_\_\_\_\_

6.  $-\frac{7}{8}$  \_\_\_\_\_  $-\frac{5}{6}$

\_\_\_\_\_

7.  $-\frac{1}{2}$  \_\_\_\_\_  $\frac{1}{3}$

\_\_\_\_\_

Write in decimal form.

8.  $\frac{-3}{4}$

---

9.  $\frac{10}{3}$

---

10.  $\frac{-5}{8}$

---

Write in simplest fractional form.

11. .8

---

12.  $-.72$

---

13. 1.4

---

Give each sum or difference in simplest form.

14.  $\frac{-2}{7} + \frac{-2}{7}$

---

15.  $\frac{-1}{2} + \frac{3}{8}$

---

16.  $\frac{1}{2} + \frac{-1}{4}$

---

17.  $\frac{1}{6} - \frac{-1}{3}$

---

18.  $\frac{-7}{10} - \frac{1}{5}$

---

19.  $\frac{1}{2} - \frac{1}{3}$

---

Give each product or quotient in simplest form.

20.  $\frac{-5}{7} \cdot \frac{14}{25}$

---

21.  $\frac{-3}{4} \cdot \frac{-1}{5}$

---

22.  $8\frac{1}{4} \cdot -2\frac{6}{11}$

---

23.  $9876\frac{1234}{5678} \div 9876\frac{1234}{5678}$

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24.  $\frac{-1}{2} \div -4$

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25.  $-6\frac{1}{4} \div 4\frac{4}{5}$

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