

# Fractions, Decimals, and Rational Numbers

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

A *rational number* can be written as a fraction  $\frac{a}{b}$  of integers. Turn a fraction into a decimal by dividing the top by the bottom. A decimal that *terminates* or *repeats* is rational. To compare, write both numbers in the same form.

▶ **Example:** Write  $\frac{3}{4}$  as a decimal. **Work:** Divide the top by the bottom:  $3 \div 4 = 0.75$ .

★ **Answer:** 0.75



$\frac{1}{2} = 0.5 = 50\%$ .

### Practice Problems

Convert or compare as directed.

- |                               |       |                                 |       |
|-------------------------------|-------|---------------------------------|-------|
| 1. $\frac{1}{2}$ as a decimal | _____ | 8. $\frac{1}{10}$ as a decimal  | _____ |
| 2. $\frac{3}{4}$ as a decimal | _____ | 9. $\frac{3}{5}$ as a decimal   | _____ |
| 3. $\frac{1}{4}$ as a decimal | _____ | 10. 0.75 as a fraction          | _____ |
| 4. $\frac{2}{5}$ as a decimal | _____ | 11. $\frac{7}{10}$ as a decimal | _____ |
| 5. $\frac{1}{5}$ as a decimal | _____ | 12. Is 0.5 rational?            | _____ |
| 6. 0.5 as a fraction          | _____ | 13. $\frac{1}{8}$ as a decimal  | _____ |
| 7. 0.25 as a fraction         | _____ | 14. 0.2 as a fraction           | _____ |

### Word Problems

15. A pizza is cut and you eat  $\frac{3}{4}$  of it. Write that as a decimal. \_\_\_\_\_
16. A gas tank is filled to 0.5 of its capacity after a commute. What fraction of the tank is full, in simplest form? \_\_\_\_\_
17. Which is larger,  $\frac{1}{2}$  or 0.4? \_\_\_\_\_
18. Convert  $\frac{2}{5}$  to a decimal. \_\_\_\_\_



## Answer Keys

- |                                      |                                      |  |
|--------------------------------------|--------------------------------------|--|
| 1. <input type="text" value="0.5"/>  | 7. <input type="text" value="1/4"/>  | 13. <input type="text" value="0.125"/> |
| 2. <input type="text" value="0.75"/> | 8. <input type="text" value="0.1"/>  | 14. <input type="text" value="1/5"/>   |
| 3. <input type="text" value="0.25"/> | 9. <input type="text" value="0.6"/>  | 15. <input type="text" value="0.75"/>  |
| 4. <input type="text" value="0.4"/>  | 10. <input type="text" value="3/4"/> | 16. <input type="text" value="1/2"/>   |
| 5. <input type="text" value="0.2"/>  | 11. <input type="text" value="0.7"/> | 17. <input type="text" value="1/2"/>   |
| 6. <input type="text" value="1/2"/>  | 12. <input type="text" value="Yes"/> | 18. <input type="text" value="0.4"/>   |

### Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $1 \div 2 = 0.5$ . So the final answer is 0.5.
2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3 \div 4 = 0.75$ . So the final answer is 0.75.
3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $1 \div 4 = 0.25$ . So the final answer is 0.25.
4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $2 \div 5 = 0.4$ . So the final answer is 0.4.
5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $1 \div 5 = 0.2$ . So the final answer is 0.2.
6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $0.5 = \frac{5}{10} = \frac{1}{2}$ . So the final answer is  $\frac{1}{2}$ .
7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $0.25 = \frac{25}{100} = \frac{1}{4}$ . So the final answer is  $\frac{1}{4}$ .
8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $1 \div 10 = 0.1$ . So the final answer is 0.1.
9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3 \div 5 = 0.6$ . So the final answer is 0.6.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $0.75 = \frac{75}{100} = \frac{3}{4}$ . So the final answer is  $\frac{3}{4}$ .
11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $7 \div 10 = 0.7$ . So the final answer is 0.7.
12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is It terminates, so yes, rational. So the final answer is Yes.
13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $1 \div 8 = 0.125$ . So the final answer is 0.125.
14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $0.2 = \frac{2}{10} = \frac{1}{5}$ . So the final answer is  $\frac{1}{5}$ .
15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3 \div 4 = 0.75$ . So the final answer is 0.75.
16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $0.5 = \frac{1}{2}$ . So the final answer is  $\frac{1}{2}$ .
17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $\frac{1}{2} = 0.5 > 0.4$ . So the final answer is  $\frac{1}{2}$ .
18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $2 \div 5 = 0.4$ . So the final answer is 0.4.



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