

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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