

Lesson 15: The Division Algorithm—Converting Decimal Division into Whole Number Division Using Mental Math

Classwork

Opening Exercise

Use mental math to evaluate the numeric expressions.

a. $99 + 44$

b. $86 - 39$

c. 50×14

d. $180 \div 5$

Example 1: Use Mental Math to Find Quotients

Use mental math to evaluate $105 \div 35$.

Exercises 1–4

Use mental math techniques to evaluate the expressions.

1. $770 \div 14$

2. $1,005 \div 5$

3. $1,500 \div 8$

4. $1,260 \div 5$

Example 2: Mental Math and Division of Decimals

Evaluate the expression $175 \div 3.5$ using mental math techniques.

Exercises 5–7

Use mental math techniques to evaluate the expressions.

5. $25 \div 6.25$

6. $6.3 \div 1.5$

7. $425 \div 2.5$

Example 3: Mental Math and the Division Algorithm

Evaluate the expression $4,564 \div 3.5$ using mental math techniques and the division algorithm.

Example 4: Mental Math and Reasonable Work

Shelly was given this number sentence and was asked to place the decimal point correctly in the quotient.

$$55.6875 \div 6.75 = 0.825$$

Do you agree with Shelly?

Divide to prove your answer is correct.

Problem Set

Use mental math, estimation, and the division algorithm to evaluate the expressions.

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| 1. $118.4 \div 6.4$ | 2. $314.944 \div 3.7$ | 3. $1,840.5072 \div 23.56$ |
| 4. $325 \div 2.5$ | 5. $196 \div 3.5$ | 6. $405 \div 4.5$ |
| 7. $3,437.5 \div 5.5$ | 8. $393.75 \div 5.25$ | 9. $2,625 \div 6.25$ |
| 10. $231 \div 8.25$ | 11. $92 \div 5.75$ | 12. $196 \div 12.25$ |
| 13. $117 \div 6.5$ | 14. $936 \div 9.75$ | 15. $305 \div 12.2$ |

Place the decimal point in the correct place to make the number sentence true.

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|-------------------------------|--------------------------------|--------------------------------|
| 16. $83.375 \div 2.3 = 3,625$ | 17. $183.575 \div 5,245 = 3.5$ | 18. $326,025 \div 9.45 = 3.45$ |
| 19. $449.5 \div 725 = 6.2$ | 20. $446,642 \div 85.4 = 52.3$ | |