

The Number of Digits in a Product or Quotient

Estimation can help you determine the size of a product or quotient.

$$22,459 \times 5 > 100,000$$
$$20,000^+ \times 5 > 100,000^+$$

This product has 6 digits.

$$234,401 \div 7 > 30,000$$
$$230,000^+ \div 7 > 30,000^+$$

This quotient has 5 digits.

Decide only how many digits each product or quotient below will have. Watch the signs!

1. $4,431 \times 8$ 5 digits

2. $8,123 \times 6$ _____

3. $10,578 \times 4$ _____

4. 555×32 _____

5. $7,015 \times 25$ _____

6. $1,000 \times 1,000$ _____

7. $5,345 \times 711$ _____

8. $634,891 \times 312$ _____

9. $44,094 \div 6$ _____

10. $6,435 \div 9$ _____

11. $541,020 \div 10$ _____

12. $75,096 \div 8$ _____

13. $500,000 \div 25$ _____

14. $720,000 \div 80$ _____

15. $4,000,000 \div 800$ _____

16. $37,000,000 \div 4,000$ _____



Challenger

Think about the 3-digit numbers you multiply to get a 6-digit product. What are the smallest and largest 3-digit factors possible? Provide examples.

Real-Life Number Sense—Estimation and Money

Estimation and mental mathematics are especially useful when dealing with money.

The regular price of a CD player is \$74.99. One store has it on sale for 30% off the regular price. Another store is selling it for \$20 off the regular price. Which is the better deal?



\$74.99 is about \$75 and 10% is \$7.50. So 30% off would be about \$22.50 for a sale price of about \$52.50. This is a better deal than \$20 off \$75 for \$55.

Use estimation and mental mathematics to answer each question.

1. Mr. Chung's bill for dinner at a restaurant was \$147.89. The service was good, and he wants to leave a 15% to 20% tip. Should he leave \$14.78, \$16, or \$28? Why?

2. Mrs. Montoya's bill for paint was \$58.78, before tax. The tax rate was 5%. Was Mrs. Montoya's bill more or less than \$60? Explain.

3. For \$9.99, Joe can buy a large sub sandwich that serves 3 people. About how much money will he need for subs for 17 people? Explain.

4. The bike shop had a $\frac{1}{3}$ -off sale for all bikes. Tonia wants a bike that regularly costs \$199.99. She has saved \$150.00. Is that enough to buy the bike she wants, including a 5% sales tax? Explain.

5. An amusement park has a special rate for groups that is 20% off the usual admission of \$19.99 per person. At that rate, about how much money will admission cost for a group of 506 people? Explain.



Challenger

Your bill for lunch was \$10.00. Would you rather have \$2.00 off the bill or 25% off? Would it make a difference if the bill was \$6.00? Explain your thinking.