

1.  $5.8 \times 4 \approx \underline{24}$

How  
up  
ork.

$6 \times 4 = 24$

2.  $13.92 \times 2.7 \approx \underline{42}$

$14 \times 3 = 42$

3.  $94.89 \times 3.11 \approx \underline{270}$

$90 \times 3 = 270$

4. **Financial Literacy** A grocery store sells American cheese for \$3.89 per pound. About how much would 1.89 pounds of the cheese cost?

(Examples 3 and 4)

**about \$8**

5. Greg has 52 megabytes left on his MP3 player. He wants to download 7 songs that each use 7.9 megabytes of memory. He estimates that he will need 56 megabytes of memory. Is his estimate reasonable? Explain your reasoning. (Example 5)


**Yes;  $7.9 \approx 8$  and  $56 \div 8 = 7$ . So, 7 songs will use about**

**56 megabytes.**



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6.  **Building on the Essential Question** How do you determine which place value to use when estimating products?

**Sample answer: It is easier to multiply numbers that have been rounded to the greatest place value. However, the product may be more accurate if you round to a smaller place value.**

### Rate Yourself!

How confident are you about estimating products? Check the box that applies.



For more help, go online to access a Personal Tutor.



Estimate each product. (Examples 1 and 2) **Sample answers: 1–6**

1.  $9.7 \times 3.3 \approx$  30

$10 \times 3 = 30$



2.  $3.4 \times 5.6 \approx$  18

$3 \times 6 = 18$

3   $17.5 \times 8.4 \approx$  160

$20 \times 8 = 160$

4.  $44.8 \times 5.1 \approx$  225

$45 \times 5 = 225$

5.  $28.21 \times 8.02 \approx$  240

$30 \times 8 = 240$

6.  $71.92 \times 2.01 \approx$  140

$70 \times 2 = 140$

7. On average, the U.S. produces 36.5 million tons of fruit each year. About how much fruit does it produce in 2.25 years? (Examples 3 and 4)

**about 80 million tons**





8. Lisha is making headbands using ribbon. She would like to make 12 headbands. Each one requires 15.5 inches of ribbon. She estimates that she will need to buy 160 inches of ribbon. Is her estimate reasonable? Explain your reasoning. (Example 5)

**No; Sample answer: Since 12 rounds down to 10 and 15.5 rounds to 16 by a lesser amount, her estimate of  $10 \times 16 = 160$  will be too low.**

- 9 Financial Literacy** Hannah's hourly wage at the ice cream shop is \$5.85. The table shows the number of hours she worked. She estimates her earnings to be \$120. Without calculating her actual earnings, determine if her estimate is more or less than her actual earnings. Explain your reasoning.

Day	Hours Worked
Monday	3.5
Tuesday	4.25
Wednesday	3.75
Thursday	2.5
Friday	4.75

**More; her wage and hours worked were rounded up, so the actual total is less than the estimate.**

10. **STEM** A car releases 19.6 pounds of carbon dioxide for every 1 gallon of gasoline burned. Estimate the number of pounds of carbon dioxide released if 14.5 gallons are burned.

**about 300 pounds**



- a. How much more does Raj need until he has enough to buy the video game system? Raj needs to save \$132 more.
- b. Raj estimates that if he works for 20 hours, he will have enough to buy the video game system. Is he correct? Explain. No;  $\$6 \times 20 = \$120$



## H.O.T. Problems Higher Order Thinking

12. **MP Reason Abstractly** Name three decimals with a product that is about 40.

Sample answer:  $1.9 \times 5.3 \times 3.81$

13. **MP Persevere with Problems** A scooter can travel between 22 and 28 miles on each gallon of gasoline. If one gallon of gasoline costs between \$3.75 and \$3.95 per gallon, about how much will it cost to travel 75 miles? about \$12



14. **MP Justify Conclusions** Suppose your

to travel 75 miles? about \$12

14. **MP Justify Conclusions** Suppose your friend multiplied 1.2 and 2.6 and got 31.2 as the product. Is your friend's answer reasonable? Justify your response.

No; using rounding, the answer should be close to  $1 \times 3$  or 3.

15. **MP Reason Inductively** Green peppers are on sale for \$2.89 per pound. Mrs. Moseley bought 1.75 pounds of peppers. Is it more reasonable to say that she spent between \$5 and \$6 or between \$6 and \$7 on the peppers? Explain your reasoning.

between \$5 and \$6; Sample answer: The best estimate for the cost of the peppers is  $\$3 \times 2$  or \$6. Since both values were rounded up, the cost will be less than the estimate.

