Concept CHECK

Complete the problems. Check your answers in the back of the book.
Round 5,693.251 to the place value given.

1. thousands **2.** tenths **3.** hundreds **4.** ones

Rounding to the Nearest Place Value Dollar and cents amounts are often rounded to the nearest cent, or the hundredths place. Begin with the digit in the hundredths place.

EXAMPLE 3

Round to the nearest cent.

Step 1: Find the digit in the hundredths place. $112.417

Step 2: Read the number to the right of the digit in the hundredths place. If the number is five or more, then you'll want to round up. $112.417

Step 3: Round up the hundredths digit. Do not change the tenths digit. **$112.42**

Concept CHECK

Complete the problems. Check your answers in the back of the book.
Round to the nearest cent.

5. $21.277 **6.** $967.461 **7.** $138.7836 **8.** $647.555

Practice

Round 15,748,516 to the place value given.

9. millions **10.** ten millions **11.** thousands
12. hundreds **13.** ten thousands **14.** hundred thousands

15. Amy Cole records the attendance data for the sporting events at the Glass Bowl. Round each number to the amount indicated.

	Football Game	Number	Nearest Thousand	Nearest Hundred	Nearest Ten
a.	Austin Peavey	18,971			
b.	Bowling Green	25,687			
c.	Ohio University	20,119			
d.	Western Michigan	24,567			
e.	Central Michigan	19,424			

WORKSHOP 12

Comparing Fractions

Fractions with a Common Denominator To compare fractions having common denominators, simply compare their numerators. The fraction having the smaller numerator is the smaller fraction.

EXAMPLE 1

$\frac{5}{7}$ and $\frac{4}{7}$

Compare these fractions $\frac{4}{7} < \frac{5}{7}$ because $4 < 5$

Concept CHECK

Complete the problems. Check your answers in the back of the book.

1. Compare $\frac{5}{8}$ and $\frac{7}{8}$.
2. Compare $\frac{11}{12}$ and $\frac{7}{12}$.
3. Compare $\frac{2}{3}$ and $\frac{1}{3}$.
4. Compare $\frac{49}{50}$ and $\frac{41}{50}$.

Fractions without a Common Denominator To compare fractions having different denominators, one approach is to get a common denominator and then compare numerators.

EXAMPLE 2

Compare the fractions without a common denominator.

$\frac{7}{11}$ and $\frac{13}{21}$

Step 1: One way to compare two fractions with unlike denominators is to multiply the numerator and the denominator of each fraction you are comparing by 1. However, write the value of 1 as a fraction using the denominator of the other fraction.

$\frac{7}{11}$ and $\frac{13}{21}$ $\quad \frac{7}{11} \times \frac{21}{21} = \frac{\mathbf{147}}{\mathbf{231}} \quad \frac{13}{21} \times \frac{11}{11} = \frac{\mathbf{143}}{\mathbf{231}}$

Step 2: Change the fractions to equivalent form.

Since $\frac{21}{21}$ is equal to 1 and $\frac{11}{11}$ is equal to 1, you're not changing the value of $\frac{7}{11}$ or $\frac{13}{21}$. However, you are changing the fractions to their equivalent forms. That means the fractions now have a common denominator so you can easily compare them.

$\frac{143}{231} < \frac{147}{231}$ because $143 < 147$

Remember that $\frac{7}{11} = \frac{147}{231}$ and $\frac{13}{21} = \frac{143}{231}$ so $\frac{\mathbf{13}}{\mathbf{21}} < \frac{\mathbf{7}}{\mathbf{11}}$

Concept CHECK

Complete the problems. Check your answers in the back of the book.
Compare fractions.

5. $\frac{5}{6}$ and $\frac{7}{8}$

6. $\frac{7}{12}$ and $\frac{5}{9}$

7. $\frac{3}{7}$ and $\frac{7}{15}$

8. $\frac{45}{47}$ and $\frac{89}{93}$

9. $\frac{8}{11}$ and $\frac{15}{19}$

10. $\frac{1}{23}$ and $\frac{2}{45}$

11. $\frac{5}{13}$ and $\frac{9}{25}$

12. $\frac{147}{347}$ and $\frac{440}{1{,}039}$

Practice

Compare the following fractions.

13. $\frac{4}{5}$ and $\frac{3}{5}$

14. $\frac{8}{13}$ and $\frac{10}{13}$

15. $\frac{347}{498}$ and $\frac{299}{498}$

16. $\frac{1}{4}$ and $\frac{1}{5}$

17. $\frac{5}{8}$ and $\frac{11}{18}$

18. $\frac{4}{9}$ and $\frac{7}{12}$

19. $\frac{43}{45}$ and $\frac{22}{23}$

20. $\frac{91}{97}$ and $\frac{45}{49}$

21. $\frac{14}{19}$ and $\frac{27}{37}$

22. $\frac{7}{15}$ and $\frac{15}{31}$

23. $\frac{23}{25}$ and $\frac{45}{49}$

24. $\frac{57}{59}$ and $\frac{115}{119}$

25. $\frac{3}{11}$ and $\frac{7}{23}$

26. $\frac{5}{34}$ and $\frac{9}{67}$

27. $\frac{12}{17}$ and $\frac{26}{37}$

28. $\frac{132}{235}$ and $\frac{260}{463}$

29. The Clothing Hut advertised $\frac{1}{3}$ off its summer clearance items while Apparel Outlet advertised $\frac{1}{4}$ off. Which store was taking the most off?

30. The newspaper reported that on the "big board," where 1.24 billion shares were traded, 1,366 stocks fell and 1,788 rose. On the NASDAQ, where 1.76 billion shares were traded, 1,587 fell and 2,068 rose. Comparing the fractions of stocks that fell to stocks that rose, which market had the largest fraction?

31. The newspaper reported that the Dow Jones Industrials have had a low of 8,062 and a high of 11,350. The Dow Jones Transportation index has had a low of 1,942 and a high of 3,157. Comparing the fraction of low to high for the year, did the Dow Jones Industrials or the Dow Jones Transportation index have the largest fraction?

32. The Tampa Bay Buccaneers completed 18 passes out of 40 attempts. The Chicago Bears completed 14 out of 29. Which team had the greatest fractional part of attempted passes completed?

33. Data from a recent *Waste News* indicates that Chicago, Illinois was generating 2,146,321 tons of waste per year, and of that amount, 378,954 tons was paper. Los Angeles, on the other hand, was generating approximately 664,045 tons of waste per year, and of that amount, 160,366 tons was paper. Which city had the greater ratio of paper to waste?