## Lesson 6.4 Real-World Problems: Percent

## Solve. Show your work. Check that your answers are reasonable.

1. Ella collects 50 bottles to recycle. Of the bottles she collects, 19 are plastic and the rest are glass.
a) What percent of the bottles are plastic?
b) What percent of the bottles are glass?
2. A salesperson receives a $5 \%$ commission on the sale of each car. If the commission on a car is $\$ 490$, what is the price of the car?
3. Ms. Jolla has a budget of $\$ 1,000$ to buy a television set. The price of the television set she wants to buy is $\$ 950$. Does Ms. Jolla have enough money to purchase the television set given that the sales tax is 7\%? Explain your reasoning.

Name:
Date:
4. Darrell and his three cousins are dining at a restaurant. Their bill is for $\$ 60$ worth of food plus an additional $15 \%$ of the total for service charge. How much does each person pay if they share the bill equally?
5. Diana invests $\$ 25,000$ in a bank at the beginning of the year. She will receive $7 \%$ interest at the end of the year, but she will have to pay a $16 \%$ tax on the interest received.
a) How much interest will Diana earn after she pays the tax?
b) What percent of Diana's investment is the interest after paying the tax?
6. Two types of sandwiches were made for a tea party. $55 \%$ of the sandwiches were cheese sandwiches and the rest were chicken sandwiches. If there were 252 chicken sandwiches, how many sandwiches were made altogether?
7. Lee buys a computer and a printer for $\$ 2,028$. The printer costs $30 \%$ of the price of the computer. What is the price of the computer?
8. Ali, Ben, and Cliff plant seedlings in their neighborhood park. Ali plants $40 \%$ of the total number of seedlings, Ben plants $45 \%$ of the total number of seedlings, and Cliff plants the rest of the seedlings. If Cliff plants 87 seedlings, how many seedlings do the three boys plant altogether?
11. $100 \%-20 \%-40 \%=40 \%$
$240 \times 40 \%=96$
Joanna makes 96 egg salad sandwiches.
12. $100 \%-50 \%-35 \%=15 \%$
$\frac{15}{100} \times 1,640=246$
246 students walk to school.
13. $60 \% \rightarrow 720$
$1 \% \rightarrow 720 \div 60=12$
$100 \% \rightarrow 12 \times 100=1,200$
There are 1,200 balls in the ball pit.
14. $28 \% \rightarrow \$ 350$
$1 \% \rightarrow \$ 350 \div 28=\$ 12.50$
$100 \% \rightarrow 12.50 \times 100=\$ 1,250$
His total savings is $\$ 1,250$.
15. a) $62 \% \rightarrow 310$
$1 \% \rightarrow \$ 310 \div 62=5$
$100 \% \rightarrow 5 \times 100=500$
There are 500 pages in the book.
b) $100 \%-62 \%=38 \%$
$38 \% \times 500=190$
190 pages in the book have no pictures.
16. a) $95 \% \times 400=380$

380 students are at the school carnival.
b) $100 \%-55 \%=45 \%$
$45 \% \times 380=171$
171 students at the school carnival are girls.
c) $100 \%-95 \%=5 \%$ $5 \% \times 400=20$
20 teachers are at the school carnival.
d) $100 \%-35 \%=65 \%$ $65 \% \times 20=13$
There are 13 female teachers at the school carnival.
17. a) $55 \% \times 1,800=990$ girls 990 students enrolled in school are girls.
b) $30 \% \times 990=297$ girls

297 girls take the bus to school.
c) 1,800-990 $=810$ boys
$70 \% \times 810=567$
567 boys take the bus to school.
18. $30 \% \times 160=48$ apples

Pears and oranges: $160-48$

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=112
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Oranges: $100 \%-25 \%=75 \%$
$75 \% \times 112=84$ oranges
84 oranges are in the box.
19. Cost of the dress: $30 \% \times \$ 450$ $=\$ 135$
$\$ 450-\$ 135=\$ 315$
Money left: 100\%-20\% = 80\%
$80 \% \times \$ 315=\$ 252$
Susan has $\$ 252$ left.

## Lesson 6.4

1. a) $\frac{19}{50} \times 100 \%=38 \%$
b) $\frac{31}{50} \times 100 \%=62 \%$
2. $5 \% \rightarrow \$ 490$
$1 \% \rightarrow \frac{490}{5}=98$
$100 \% \rightarrow 100 \times \$ 98=\$ 9,800$
3. $\operatorname{Tax} \rightarrow 7 \% \times \$ 950=\$ 66.50$
$\$ 950+\$ 66.50=\$ 1,016.50$
$\$ 1,016.50-\$ 1,000=\$ 16.50$
No, she does not have enough money to buy the television set. The cost, including tax, is $\$ 1,016.50$ for the television set, which is $\$ 16.50$ more than her budgeted amount.
4. Service charge $=\frac{15}{100} \times \$ 60=\$ 9$

Total $=\$ 60+\$ 9=\$ 69$
$\$ 69 \div 4=\$ 17.25$
Each person pays $\$ 17.25$.
5. a) Interest $=7 \% \times \$ 25,000$

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=\$ 1,750
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Tax $=16 \% \times \$ 1,750=\$ 280$
Actual interest
$=\$ 1,750-\$ 280$
$=\$ 1,470$
Diana will receive $\$ 1,470$ after paying the tax.
b) $\frac{1,470}{25,000} \times 100 \%=5.88 \%$

The interest is $5.88 \%$ of Diana's investment after paying the tax.
6. $100 \%-55 \%=45 \%$
$45 \% \rightarrow 252$
$1 \% \rightarrow \frac{252}{45}$
$100 \% \rightarrow \frac{252}{45} \times 100=560$
560 sandwiches were made altogether.
7.

$130 \% \rightarrow 2,028$
$100 \% \rightarrow \frac{2,028}{130} \times 100=1,560$
The price of the computer is $\$ 1,560$.
8. $100 \%-40 \%-45 \%=15 \%$
$15 \% \rightarrow 87$
$1 \% \rightarrow \frac{87}{15}$
$100 \% \rightarrow \frac{87}{15} \times 100=580$
The three boys plant 580 seedlings altogether.

