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## Lesson 6.3 Percent of a Quantity

## Solve. Use the models to help you.

1. What is $45 \%$ of 36 feet?


Find the quantity represented by each percent.
2. $35 \%$ of 125 miles $\qquad$
4. $65 \%$ of 180 pounds $\qquad$
6. $18 \%$ of
8. $55 \%$ of $\qquad$ is 99.
6. $18 \%$ of
8. $55 \%$ of $\qquad$ is 143 .
7. $92 \%$ of $\qquad$ is 345 .
7. $92 \%$ of
3. $46 \%$ of 340 gallons $\qquad$
5. $75 \%$ of 72 hours $\qquad$

## Find the missing value.

Name:
Date:

## Solve. Show your work.

10. There are 325 children at a zoo. If $64 \%$ of the children are boys and the rest are girls, how many children at the zoo are girls?
11. Of the 240 sandwiches Joanna makes, $20 \%$ are tuna sandwiches, $40 \%$ are ham sandwiches, and the rest are egg salad sandwiches. How many egg salad sandwiches does Joanna make?
12. Of the 1,640 students enrolled at a school, $50 \%$ come to school by bus, $35 \%$ come by car, and the rest of the students walk to school. How many students walk to school?
13. A ball pit at a play area is filled with red and yellow balls. Of the total number of balls, $60 \%$ are red. If there are 720 red balls, how many balls are in the ball pit?
14. $28 \%$ of the amount in Keith's savings is $\$ 350$. How much money does Keith have in his savings?
15. Of the total number of pages in a book, $62 \%$ have pictures and the rest have no pictures. There are 310 pages with pictures in the book.
a) What is the total number of pages in the book?
b) How many pages in the book have no pictures?
16. Of the 400 people at the school carnival, $95 \%$ are students and the rest are teachers.
a) How many students are at the school carnival?
b) If $55 \%$ of the students at the school carnival are boys, how many are girls?
c) How many teachers are at the school carnival?
d) If $35 \%$ of the teachers are male and the rest are female, how many female teachers are at the carnival?

Name:
Date:
17. Of the 1,800 students enrolled in school, $55 \%$ are girls. Of the girls attending this school, $30 \%$ take the bus to school. Of the boys attending the school, $70 \%$ take the bus to school.
a) How many students enrolled in school are girls?
b) How many girls take the bus to school?
c) How many boys take the bus to school?
18. A box contains 160 fruits. Of the total number of fruits in the box, $30 \%$ are apples. $25 \%$ of the remaining fruits in the box are pears, and the rest of the fruits in the box are oranges. How many oranges are in the box?
19. Susan has $\$ 450$. She uses $30 \%$ of her money to buy a dress and $20 \%$ of the remainder to buy a pair of shoes. How much money does she have left?

## Brain @ Work

1. $14.4 \times 1,000=14,400 \mathrm{~mL}$

1 minute $\rightarrow 140+100=240 \mathrm{~mL}$
$\frac{14,400}{240}=60 \mathrm{~min}=1 \mathrm{~h}$
It will take 1 hour to fill the fish tank
completely.
2. $4.8 \times 1,000=4,800 \mathrm{~mL}$

Water leaking out of the tank in 1 minute $\rightarrow$ $270-150=120 \mathrm{~mL}$ $4,800 \div 120=40 \mathrm{~min}$ It will take 40 minutes to empty the tank.

## Chapter 6

## Lesson 6.1

1. $\frac{6}{25}$
2. $\frac{24}{25}$
3. $1 \frac{7}{25}$
4. $1 \frac{1}{2}$
5. $2 \frac{1}{4}$
6. $3 \frac{3}{5}$
7. $6 \frac{49}{50}$
8. $7 \frac{3}{4}$
9. 0.08
10. 0.32
11. 0.85
12. 0.99
13. 1.3
14. 5.68
15. 2.85
16. 3.8
17. $\frac{45}{300} \times 100 \%=15 \%$
$15 \%$ of the animals in the zoo are birds.
18. $\frac{98}{400} \times 100 \%=24 \frac{1}{2}$
$24 \frac{1}{2} \%$ of the vehicles that passed the intersection are buses.
19. Boys $\rightarrow 400-180=220$
$\frac{220}{400}=55 \%$
$55 \%$ of the students at the basketball game are boys.
20. Correct $\rightarrow 30-12=18$
$\frac{18}{30} \times 100 \%=60 \%$
He answered $60 \%$ of the questions correctly.
21. Total $=12+20+8=40$
$\frac{12}{40} \times 100 \%=30 \%$
$30 \%$ of the muffins are blueberry.
22. Total $=23+40+28+52+77$
$=220$
$\frac{77}{220} \times 100 \%=35 \%$
$35 \%$ of the books were sold on Friday.

## Lesson 6.2

1. $80 \%$
2. $62 \frac{1}{2} \%$
3. $53 \frac{1}{3} \%$
4. $175 \%$
5. $370 \%$
6. $245 \%$
7. $8 \%$
8. $56 \%$
9. $90 \%$
10. $107 \%$
11. $275 \%$
12. $350 \%$
13. $\frac{33}{400}$
14. $\frac{61}{200}$
15. $\frac{1}{3}$
16. $\frac{5}{12}$
17. $\frac{9}{16}$
18. $\frac{7}{8}$
19. $43 \%$
20. $58 \%$
21. $61 \%$
22. $40 \%$
23. Total amount $=2.85 \mathrm{~kg}+3.15 \mathrm{~kg}$ $\begin{aligned} & =6 \mathrm{~kg} \\ \frac{2.85}{6} \times 100 \% & =47 \frac{1}{2} \%\end{aligned}$
$47 \frac{1}{2} \%$ of the mixture is sugar.
24. a) Total $=30+15+40+25+10$

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=120
$$

$\frac{40}{120} \times 100 \%=33 \frac{1}{3} \%$
$33 \frac{1}{3} \%$ of students surveyed prefer strawberries.
b) $\frac{10}{120} \times 100 \%=8 \frac{1}{3} \%$
$8 \frac{1}{3} \%$ of students surveyed prefer the least favorite fruit (peaches).
c) $30+25=55$
$\frac{55}{120} \times 100 \%=45 \frac{5}{6} \%$
$45 \frac{5}{6} \%$ of students surveyed prefer apples or pears.

## Lesson 6.3

1. $100 \% \rightarrow 36 \mathrm{ft}$
$1 \% \rightarrow \frac{36}{100}$
$45 \% \rightarrow \frac{36}{100} \times 45=16.2$ feet
2. $43 \frac{3}{4} \%$ miles
3. $156 \frac{2}{5}$ gallons
4. 117 pounds
5. 54 hours
6. 550
7. 375
8. 260
9. 300
10. $100 \%-64 \%=36 \%$
$36 \% \times 325=117$
117 children at the zoo are girls.
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
$$

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
$$

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.

