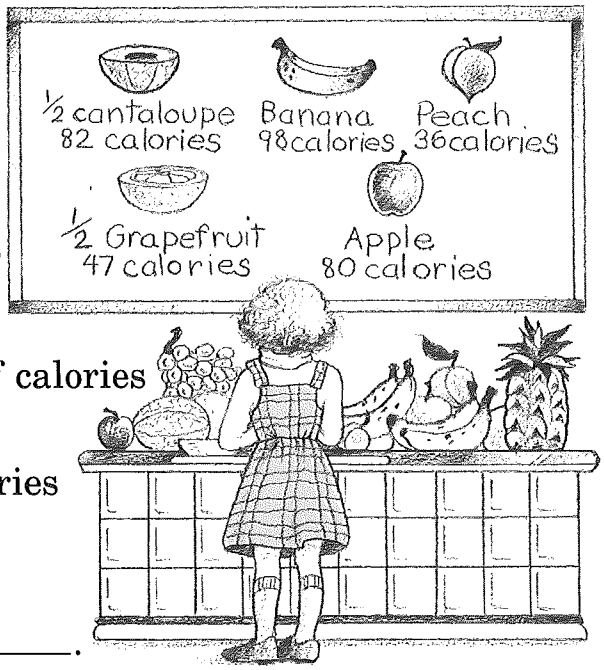
3
ADDITION OF WHOLE NUMBERS

Adding 2-digit Numbers

Carla eats fruit for breakfast each morning. This morning, she ate a peach and half a grapefruit. How many calories does Carla get in her fruit?

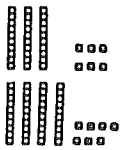
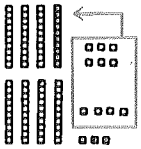
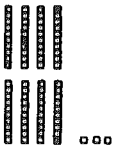


We want to know the total number of calories that Carla gets from the fruit.

We know a peach provides _____ calories

and half a grapefruit _____ calories.

To find the total, we add _____ and _____.

Add the ones.	Make a trade.	Add the tens.
		
6 ones + 7 ones = 13 ones	13 ones = 1 ten + 3 ones	1 ten + 3 tens + 4 tens = 8 tens
36	1 36	1 36 addend
+ 47	+ 47	+ 47 addend
	3	83 sum

Carla gets _____ calories from the fruit she eats.

Getting Started

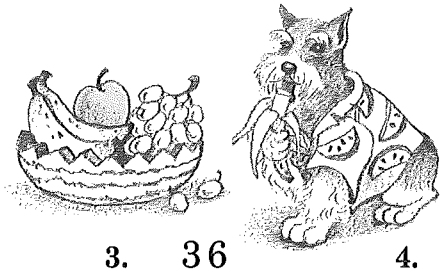
Add.

1. $\begin{array}{r} 43 \\ +\ 18 \\ \hline \end{array}$
2. $\begin{array}{r} 79 \\ +\ 35 \\ \hline \end{array}$
3. $\begin{array}{r} 26 \\ +\ 53 \\ \hline \end{array}$
4. $\begin{array}{r} 86 \\ +\ 58 \\ \hline \end{array}$

Copy and add.

5. 17 + 59
6. 76 + 8
7. 61 + 48
8. 87 + 67

Practice



Add.

1. $\begin{array}{r} 38 \\ +\ 26 \\ \hline \end{array}$	2. $\begin{array}{r} 49 \\ +\ 8 \\ \hline \end{array}$	3. $\begin{array}{r} 36 \\ +\ 81 \\ \hline \end{array}$	4. $\begin{array}{r} 9 \\ +\ 86 \\ \hline \end{array}$	5. $\begin{array}{r} 78 \\ +\ 57 \\ \hline \end{array}$
6. $\begin{array}{r} 76 \\ +\ 43 \\ \hline \end{array}$	7. $\begin{array}{r} 45 \\ +\ 55 \\ \hline \end{array}$	8. $\begin{array}{r} 26 \\ +\ 9 \\ \hline \end{array}$	9. $\begin{array}{r} 59 \\ +\ 63 \\ \hline \end{array}$	10. $\begin{array}{r} 71 \\ +\ 65 \\ \hline \end{array}$
11. $\begin{array}{r} 6 \\ +\ 58 \\ \hline \end{array}$	12. $\begin{array}{r} 67 \\ +\ 96 \\ \hline \end{array}$	13. $\begin{array}{r} 80 \\ +\ 17 \\ \hline \end{array}$	14. $\begin{array}{r} 46 \\ +\ 74 \\ \hline \end{array}$	15. $\begin{array}{r} 98 \\ +\ 96 \\ \hline \end{array}$

Copy and Do

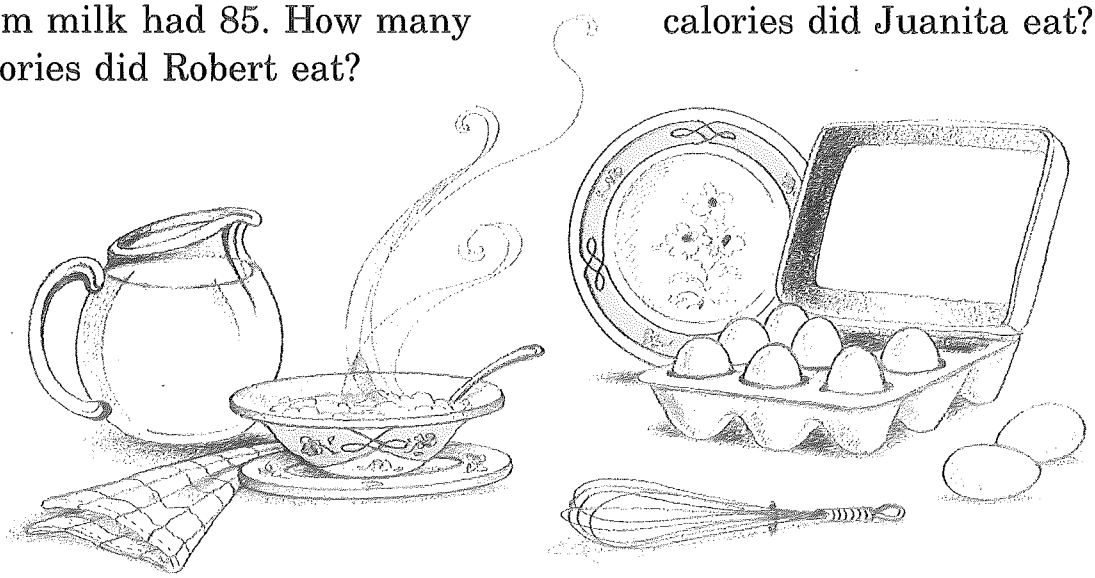
16. 32 + 19	17. 75 + 48	18. 82 + 57	19. 25 + 96
20. 43 + 58	21. 22 + 67	22. 9 + 86	23. 82 + 53
24. 74 + 8	25. 82 + 48	26. 93 + 19	27. 57 + 70

Apply

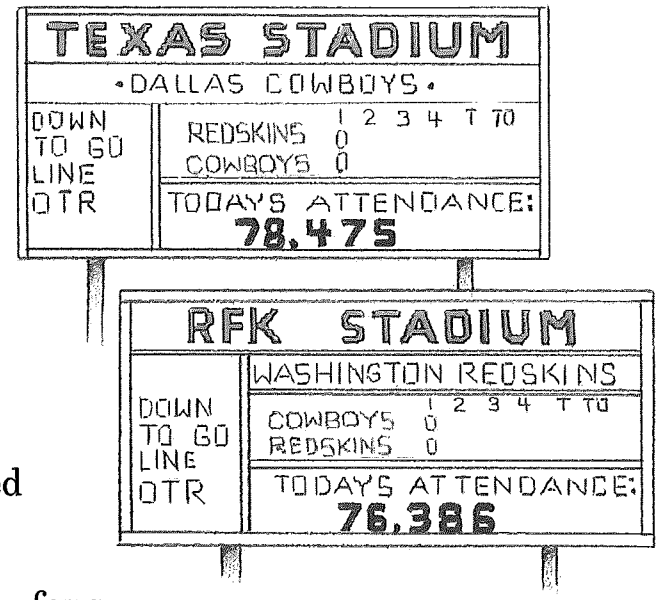
Solve these problems.

28. Robert poured a cup of skim milk over his bowl of oatmeal. The oatmeal contained 68 calories and the skim milk had 85. How many calories did Robert eat?

29. Juanita ate a scrambled egg and a piece of toast. The egg contained 96 calories and the toast had 79. How many calories did Juanita eat?



Adding 5-digit Numbers



The Dallas Cowboys and the Washington Redskins play each other twice each year. What was the total attendance for this year's games?

We want to know the total number of fans who attended both games.

We know that _____ fans attended the game in Dallas.

The Washington game drew _____ fans.

To find the sum, we add _____ and _____.

ADMIT ONE

To add two 5-digit numbers, begin by adding the ones. Then add each column to the left. Trade if needed.

1	1 1	1	1	1
78,475	78,475	78,475	78,475	78,475
+ 76,386	+ 76,386	+ 76,386	+ 76,386	+ 76,386
1	61	861	4,861	154,861

The total attendance for both games was _____.

Getting Started

Add.

1. 17,836 + 1,295
2. 4,827 + 19,254
3. 16,875 + 58,596
4. 39,454 + 12,926
5. 49,025 + 38,484
6. 22,456 + 67,381

Copy and add.

7. 16,214 + 8,295
8. 2,897 + 56,850
9. 37,488 + 55,746

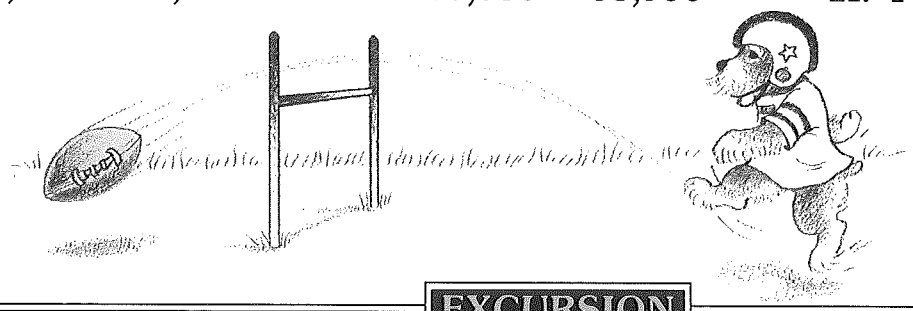
Practice

Add.

1. 16,354 + 2,865	2. 4,967 + 15,096	3. 17,858 + 8,392	4. 11,456 + 56,729
5. 96,254 + 39,687	6. 9,560 + 83,785	7. 26,586 + 76,253	8. 18,609 + 25,996
9. 35,694 + 47,828	10. 83,467 + 25,704	11. 75,496 + 86,894	12. 48,182 + 69,778

Copy and Do

13. 56,965 + 38,758	14. 41,853 + 26,348	15. 77,486 + 67,398
16. 47,836 + 9,548	17. 64,495 + 40,867	18. 87,187 + 56,838
19. 14,390 + 78,956	20. 60,086 + 88,956	21. 47,539 + 26,211



EXCURSION

Write the missing numbers in these problems.

1.
```
  □ 6 , 5 0 □
+ 1 □ , 9 □ 4
-------------
  5 9 , □ 3 1
```

2.
```
  □ 3 , □ 7 4
+ 2 5 , 4 2 □
-------------
  4 □ , 3 □ 3
```

3.
```
  3 8 , □ 5 □
+ □ 6 , 1 □ 7
-------------
  6 □ , 2 5 0
```

4.
```
  □ 7 , 0 □ 3
+ 5 □ , 2 1 8
-------------
  7 1 , □ 6 □
```

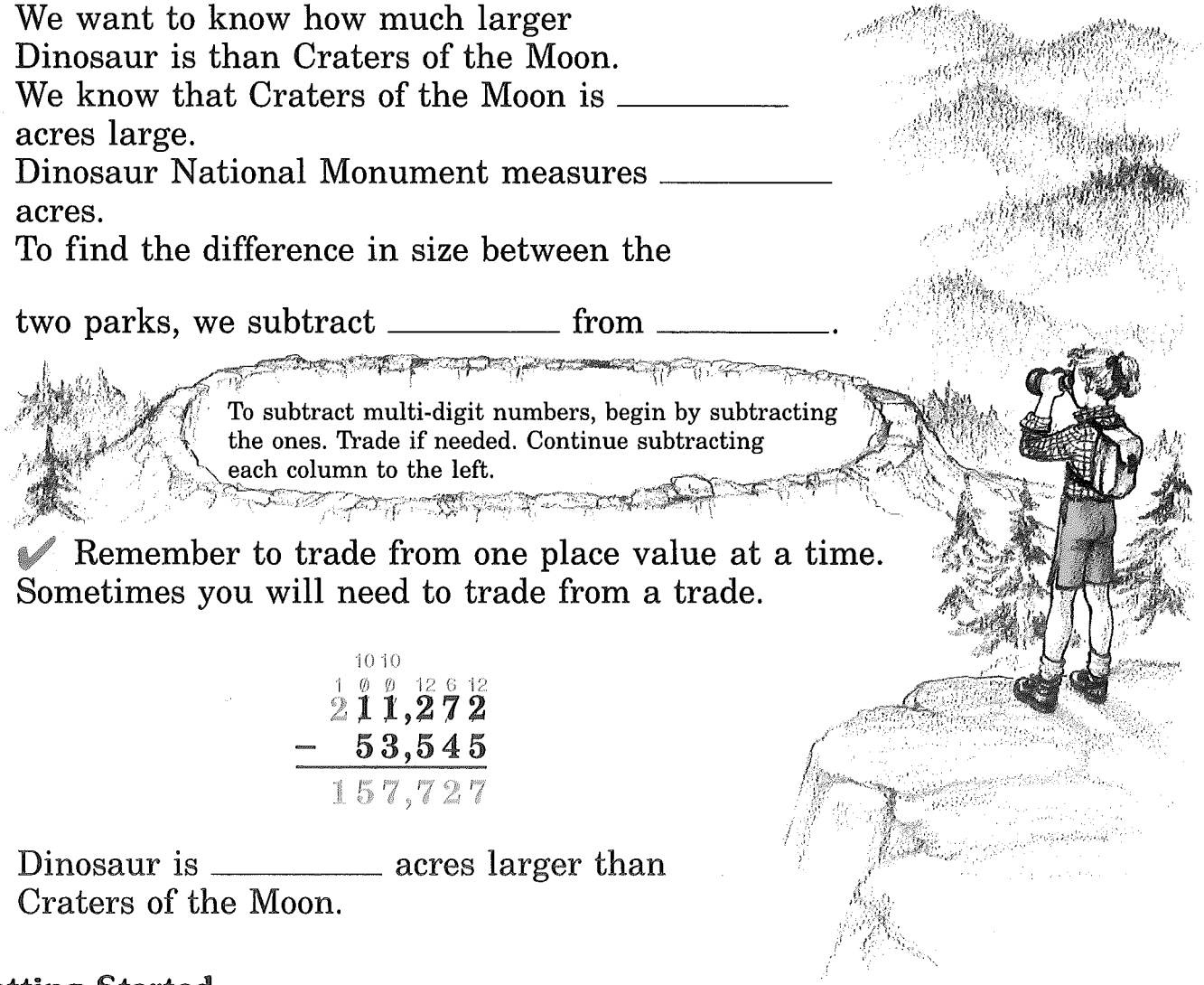
Subtracting Multi-digit Numbers

Craters of the Moon National Monument, in Idaho, was dedicated in 1924. Dinosaur National Monument, in Colorado and Utah, is an older and larger park. It was dedicated in 1915. How much larger is Dinosaur than Craters of the Moon?

National Monuments

Name	Opened	Size
Craters of the Moon	1924	53,545 acres
Dinosaur	1915	211,272 acres
Joshua Tree	1936	559,960 acres
Sunset Crater	1930	3,040 acres
Walnut Canyon	1915	2,249 acres

We want to know how much larger Dinosaur is than Craters of the Moon.
We know that Craters of the Moon is _____ acres large.
Dinosaur National Monument measures _____ acres.
To find the difference in size between the two parks, we subtract _____ from _____.



To subtract multi-digit numbers, begin by subtracting the ones. Trade if needed. Continue subtracting each column to the left.

✔ Remember to trade from one place value at a time. Sometimes you will need to trade from a trade.

```
     10 10
   1 ~~0~~ ~~0~~ 12 6 12
   2 1 1,2 7 2
 -   5 3,5 4 5
 ----------------
   1 5 7,7 2 7
```

Dinosaur is _____ acres larger than Craters of the Moon.

Getting Started

Subtract.

1. 8,475 − 2,243
2. $123.27 − 86.43
3. 176,043 − 29,228

Copy and subtract.

4. 48,758 − 21,475
5. 192,175 − 39,857
6. $436.25 − $348.99

Practice

Subtract.

1. $\begin{array}{r} 6,456 \\ -\ 2,329 \\ \hline \end{array}$	2. $\begin{array}{r} 7,502 \\ -\ 3,296 \\ \hline \end{array}$	3. $\begin{array}{r} \$57.43 \\ -\ \ 18.59 \\ \hline \end{array}$	4. $\begin{array}{r} 18,275 \\ -\ \ 3,596 \\ \hline \end{array}$
5. $\begin{array}{r} 4,253 \\ -\ 1,327 \\ \hline \end{array}$	6. $\begin{array}{r} 6,851 \\ -\ 5,926 \\ \hline \end{array}$	7. $\begin{array}{r} \$91.15 \\ -\ \ 63.75 \\ \hline \end{array}$	8. $\begin{array}{r} 8,273 \\ -\ 4,829 \\ \hline \end{array}$
9. $\begin{array}{r} 127,243 \\ -\ \ 16,158 \\ \hline \end{array}$	10. $\begin{array}{r} 40,871 \\ -\ 29,137 \\ \hline \end{array}$	11. $\begin{array}{r} 281,275 \\ -\ \ 29,469 \\ \hline \end{array}$	12. $\begin{array}{r} \$173.84 \\ -\ \ \ \ 86.96 \\ \hline \end{array}$

Copy and Do

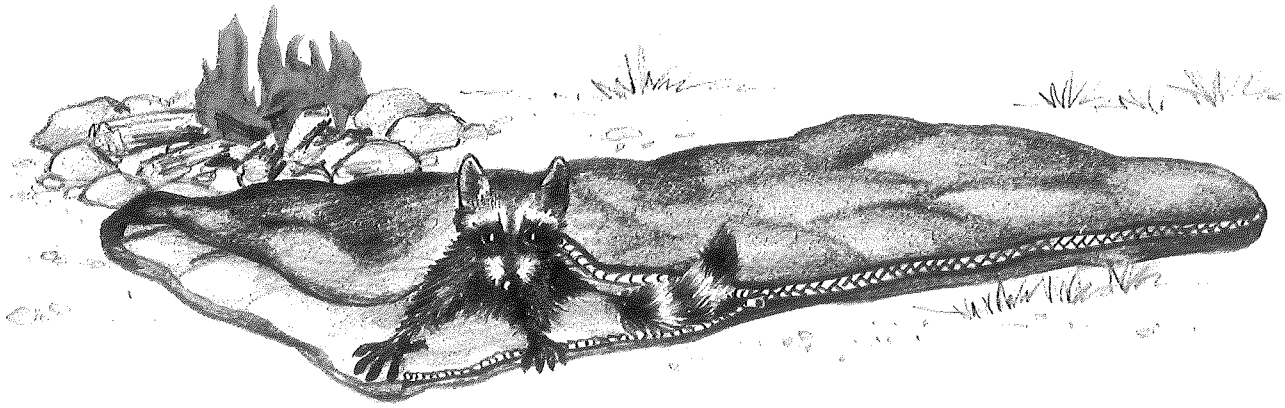
13. 7,243 − 1,165	14. \$24.75 − \$13.72	15. 8,527 − 695
16. 36,741 − 5,196	17. 20,275 − 6,889	18. \$543.78 − \$275.81
19. 296,258 − 26,579	20. \$877.73 − \$639.86	21. 47,868 − 21,975
22. 79,246 − 37,865	23. 430,173 − 14,688	24. 93,182 − 81,996

Apply

Use the chart on page 67 to help solve these problems.

25. How many acres larger is Joshua Tree National Monument than Dinosaur?

26. Is Joshua Tree National Monument larger than the other four listed national parks combined?



Multiplying Tens and Ones

River Road Foods processes and packs fresh fruits. How many cans of tomatoes will River Road pack in 4 minutes?

Packing Rates	
Food	**Number of cans per minute**
Tomatoes	21
Apples	24
Pumpkin	19

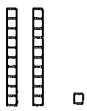
We want to know the number of cans of tomatoes packed in _____ minutes.

We know that _____ cans of tomatoes are packed in one minute.
To find the number of cans packed in 4 minutes, we multiply _____ by _____.

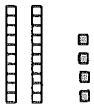
$21 \times 4 = ?$

Multiply the ones.
$4 \times 1 = 4$

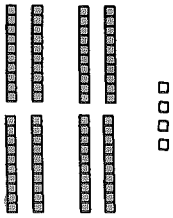
Multiply the tens.
$4 \times 2 = 8$



$$\begin{array}{r} 21 \\ \times\ \ 4 \\ \hline \end{array}$$



$$\begin{array}{r} 21 \\ \times\ \ 4 \\ \hline 4 \end{array}$$



$$\begin{array}{r} 21 \\ \times\ \ 4 \\ \hline 84 \end{array}$$

River Road Foods will pack _____ cans in 4 minutes.

Getting Started

Multiply.

1. $\begin{array}{r} 24 \\ \times\ \ 2 \\ \hline \end{array}$

2. $\begin{array}{r} 40 \\ \times\ \ 2 \\ \hline \end{array}$

3. $\begin{array}{r} 31 \\ \times\ \ 3 \\ \hline \end{array}$

Copy and multiply.

4. 2×13

5. 4×11

6. 4×22

Practice

Multiply.

1. $\begin{array}{r} 13 \\ \times\ 2 \\ \hline \end{array}$	2. $\begin{array}{r} 30 \\ \times\ 2 \\ \hline \end{array}$	3. $\begin{array}{r} 58 \\ \times\ 1 \\ \hline \end{array}$	4. $\begin{array}{r} 40 \\ \times\ 2 \\ \hline \end{array}$	5. $\begin{array}{r} 21 \\ \times\ 3 \\ \hline \end{array}$
6. $\begin{array}{r} 42 \\ \times\ 2 \\ \hline \end{array}$	7. $\begin{array}{r} 34 \\ \times\ 2 \\ \hline \end{array}$	8. $\begin{array}{r} 11 \\ \times\ 7 \\ \hline \end{array}$	9. $\begin{array}{r} 24 \\ \times\ 2 \\ \hline \end{array}$	10. $\begin{array}{r} 33 \\ \times\ 3 \\ \hline \end{array}$
11. $\begin{array}{r} 12 \\ \times\ 4 \\ \hline \end{array}$	12. $\begin{array}{r} 11 \\ \times\ 5 \\ \hline \end{array}$	13. $\begin{array}{r} 44 \\ \times\ 2 \\ \hline \end{array}$	14. $\begin{array}{r} 31 \\ \times\ 3 \\ \hline \end{array}$	15. $\begin{array}{r} 32 \\ \times\ 3 \\ \hline \end{array}$

Copy and Do

16. 10×5	17. 36×1	18. 23×3	19. 4×12
20. 3×13	21. 43×2	22. 2×22	23. 9×11
24. 41×2	25. 3×12	26. 2×33	27. 2×31

Apply

Solve these problems.

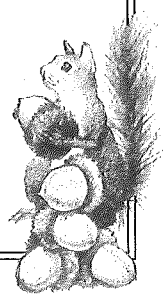
28. Manuel bought 4 dozen eggs to put into the cakes he was making for the church bake sale. How many eggs did Manuel buy?

29. Beth bought 4 stamps. Each stamp cost 22¢. How much did Beth pay for the stamps?

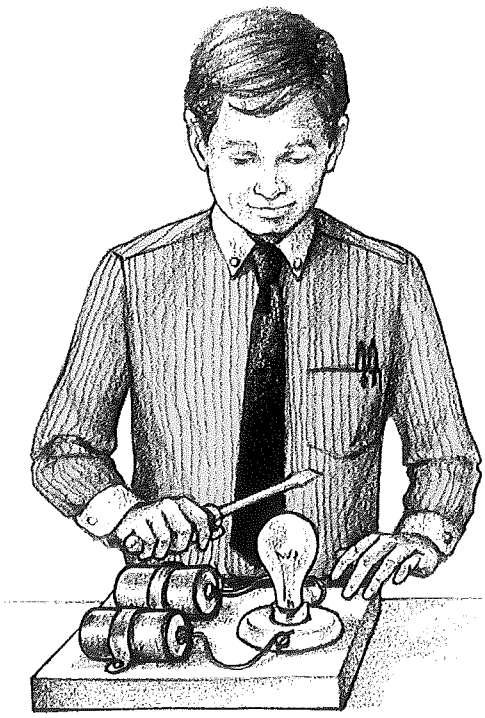
EXCURSION

Fill in the blanks so that both sides of the sentences are equal.

1. 145 − 12 = 143 − _____
2. 197 − 78 = _____ − 80
3. 41 − 13 = 48 − _____
4. 73 − 29 = _____ − 30
5. 187 − 65 = 182 − _____
6. 395 − 264 = _____ − 204
7. 359 − 126 = 363 − _____
8. 254 − 181 = _____ − 201



Multiplying, Trading Ones



The fourth grade science lab has 16 stations. Mr. Owens needs to make a battery and bulb hook-up for each station. How many batteries will Mr. Owens need?

We want to find the number of batteries Mr. Owens needs.

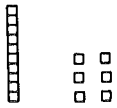
There are _____ stations in the science lab.

Each station requires _____ batteries.

To find the number of batteries needed,

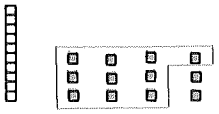
we multiply _____ by _____.

2×16



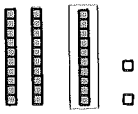
$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline ? \end{array}$$

$2 \times 6 = 12$
12 = 1 ten 2 ones



$$\begin{array}{r} {\scriptstyle 1} \\ 16 \\ \times\ \ 2 \\ \hline 2 \end{array}$$

$2 \times 1 = 2$
2 tens + 1 ten = 3 tens



$$\begin{array}{r} {\scriptstyle 1} \\ 16 \\ \times\ \ 2 \\ \hline 32 \end{array}$$

Mr. Owens needs _____ batteries.

Getting Started

Multiply.

1. $\begin{array}{r} 27 \\ \times\ \ 3 \\ \hline \end{array}$

2. $\begin{array}{r} 45 \\ \times\ \ 2 \\ \hline \end{array}$

3. $\begin{array}{r} 34 \\ \times\ \ 2 \\ \hline \end{array}$

4. $\begin{array}{r} 25 \\ \times\ \ 3 \\ \hline \end{array}$

Copy and multiply.

5. 48×2

6. 5×19

7. 38×2

Practice

Multiply.

1. $\begin{array}{r} 25 \\ \times\ 3 \\ \hline \end{array}$	2. $\begin{array}{r} 16 \\ \times\ 5 \\ \hline \end{array}$	3. $\begin{array}{r} 34 \\ \times\ 2 \\ \hline \end{array}$	4. $\begin{array}{r} 19 \\ \times\ 3 \\ \hline \end{array}$	5. $\begin{array}{r} 27 \\ \times\ 3 \\ \hline \end{array}$
6. $\begin{array}{r} 24 \\ \times\ 4 \\ \hline \end{array}$	7. $\begin{array}{r} 17 \\ \times\ 5 \\ \hline \end{array}$	8. $\begin{array}{r} 23 \\ \times\ 3 \\ \hline \end{array}$	9. $\begin{array}{r} 23 \\ \times\ 4 \\ \hline \end{array}$	10. $\begin{array}{r} 46 \\ \times\ 2 \\ \hline \end{array}$
11. $\begin{array}{r} 12 \\ \times\ 4 \\ \hline \end{array}$	12. $\begin{array}{r} 29 \\ \times\ 3 \\ \hline \end{array}$	13. $\begin{array}{r} 17 \\ \times\ 4 \\ \hline \end{array}$	14. $\begin{array}{r} 12 \\ \times\ 8 \\ \hline \end{array}$	15. $\begin{array}{r} 13 \\ \times\ 7 \\ \hline \end{array}$

Copy and Do

16. 2×36	17. 18×4	18. 26×3	19. 15×4	20. 28×2
21. 12×7	22. 2×43	23. 38×2	24. 24×3	25. 16×3
26. 2×19	27. 5×12	28. 18×3	29. 3×29	30. 4×19

Apply

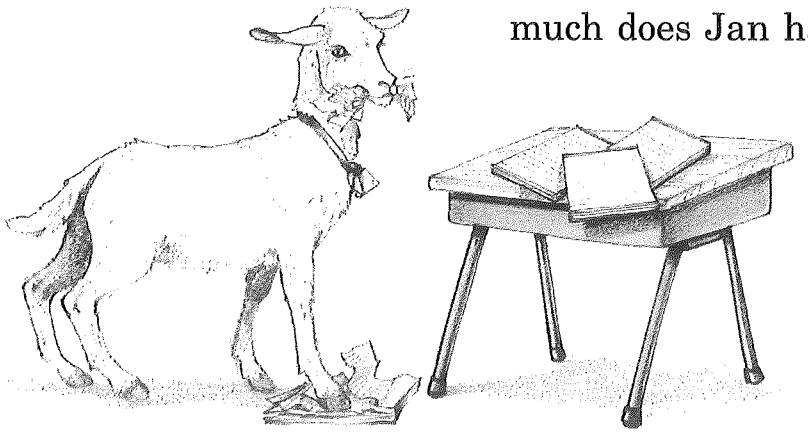
Solve these problems.

31. A tablet of colored paper costs 29¢. How much will 3 tablets cost?

32. One pair of jeans costs $23.45. A shirt costs $16.79. The jeans cost how much more than a shirt?

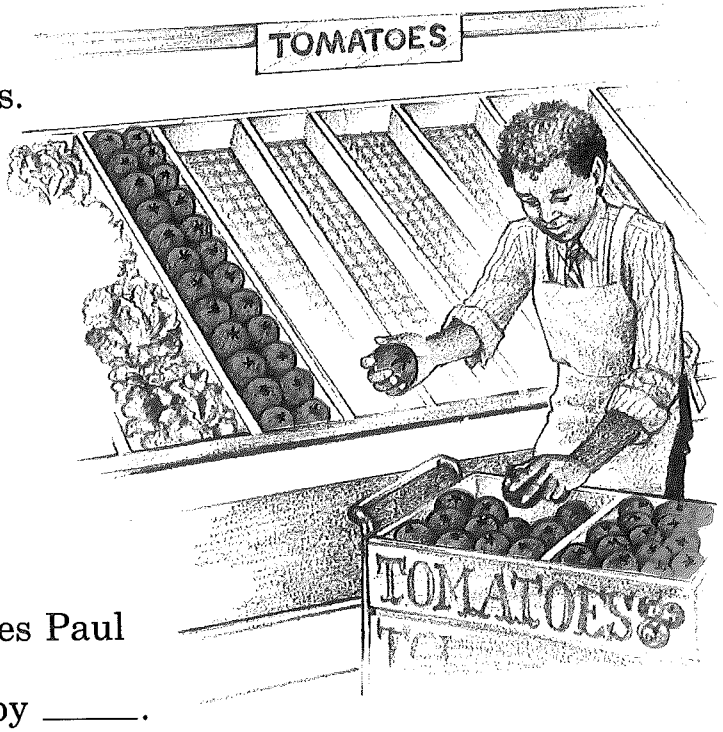
33. A tape costs $5. How much will 16 tapes cost?

34. Mark has 47 cents. Jan has twice as much as Mark. How much does Jan have?



Multiplying 2-Digit Numbers

Paul is stocking the produce bins of his grocery store. He wants to make 6 equal columns of tomatoes. How many tomatoes can Paul display?

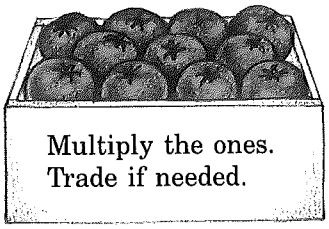


We need to find how many tomatoes Paul will display.

There will be _____ tomatoes in each column.

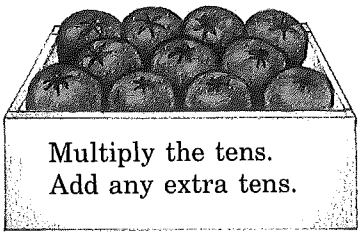
Paul will pack _____ columns of tomatoes.

To find the number of tomatoes Paul can pack, we multiply _____ by _____.



Multiply the ones.
Trade if needed.

$$\begin{array}{r} {}^{2} \\ 24 \\ \times\ \ 6 \\ \hline 4 \end{array}$$



Multiply the tens.
Add any extra tens.

$$\begin{array}{r} {}^{2} \\ 24 \\ \times\ \ 6 \\ \hline 144 \end{array}$$

Paul can pack _____ tomatoes.

Getting Started

Multiply.

1. $\begin{array}{r} 25 \\ \times\ \ 7 \\ \hline \end{array}$

2. $\begin{array}{r} 32 \\ \times\ \ 9 \\ \hline \end{array}$

3. $\begin{array}{r} 50 \\ \times\ \ 6 \\ \hline \end{array}$

4. $\begin{array}{r} 49 \\ \times\ \ 8 \\ \hline \end{array}$

Copy and multiply.

5. 62×8

6. 27×4

7. 8×36

Practice

Multiply.

1. $\begin{array}{r} 26 \\ \times\ 5 \\ \hline \end{array}$	2. $\begin{array}{r} 64 \\ \times\ 6 \\ \hline \end{array}$	3. $\begin{array}{r} 39 \\ \times\ 3 \\ \hline \end{array}$	4. $\begin{array}{r} 29 \\ \times\ 2 \\ \hline \end{array}$	5. $\begin{array}{r} 48 \\ \times\ 4 \\ \hline \end{array}$
6. $\begin{array}{r} 53 \\ \times\ 8 \\ \hline \end{array}$	7. $\begin{array}{r} 96 \\ \times\ 2 \\ \hline \end{array}$	8. $\begin{array}{r} 88 \\ \times\ 3 \\ \hline \end{array}$	9. $\begin{array}{r} 21 \\ \times\ 9 \\ \hline \end{array}$	10. $\begin{array}{r} 32 \\ \times\ 7 \\ \hline \end{array}$
11. $\begin{array}{r} 73 \\ \times\ 4 \\ \hline \end{array}$	12. $\begin{array}{r} 80 \\ \times\ 9 \\ \hline \end{array}$	13. $\begin{array}{r} 98 \\ \times\ 2 \\ \hline \end{array}$	14. $\begin{array}{r} 81 \\ \times\ 8 \\ \hline \end{array}$	15. $\begin{array}{r} 42 \\ \times\ 5 \\ \hline \end{array}$

Copy and Do

16. 2×56	17. 3×97	18. 7×23	19. 4×59	20. 6×19
21. 5×73	22. 7×24	23. 6×28	24. 2×78	25. 9×19
26. 8×88	27. 5×68	28. 6×37	29. 3×46	30. 7×35

Apply

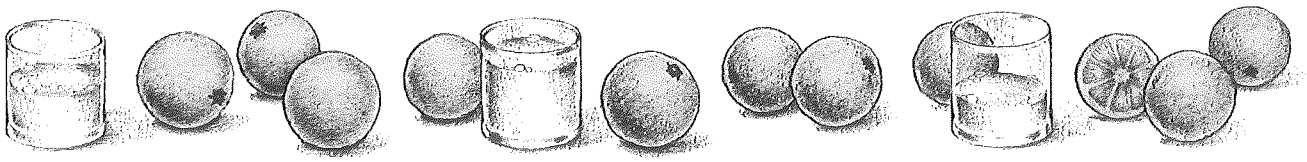
Solve these problems.

31. The Petersons drove 317 miles the first day of their vacation. They drove 287 miles the second day. How far did the Petersons drive in two days?

32. A washing machine uses 18 gallons of water for each load. How many gallons of water are used for 6 loads of wash?

33. Each tablet contains 32 pieces of paper. How many tablets do you need to buy to get at least 100 pieces of paper?

34. Each glass holds 6 ounces of juice. How many ounces of juice is needed to fill 48 glasses?

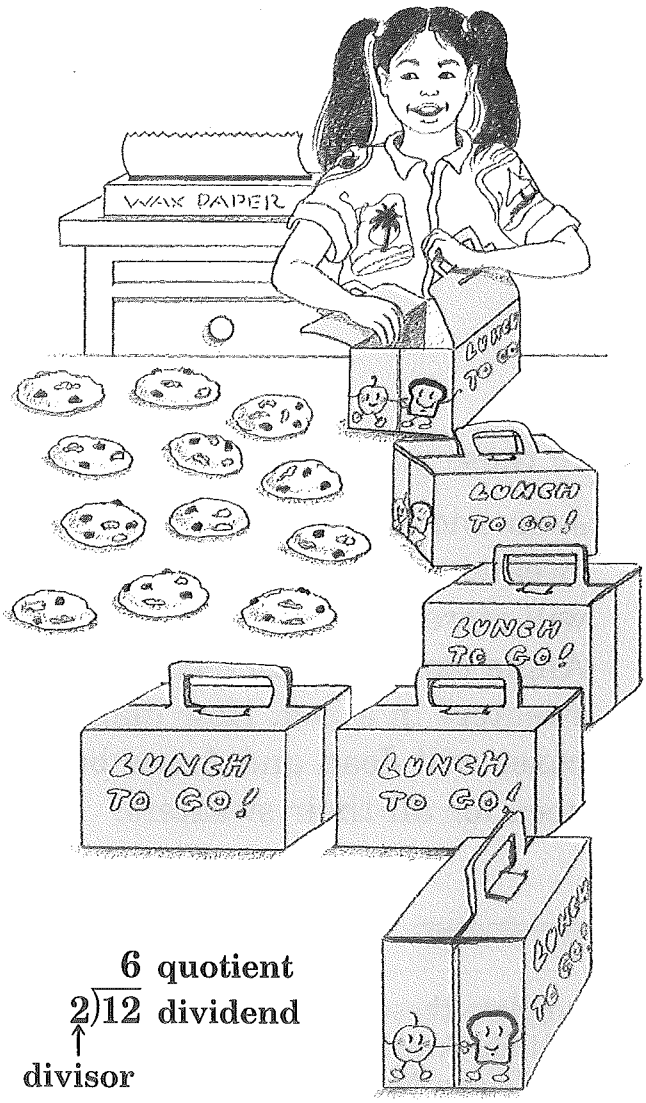


7

DIVIDING BY A 1-DIGIT NUMBER

Dividing by 2 or 3

Lori is fixing lunches and is putting 2 cookies in each lunch box. How many lunch boxes can she supply with cookies?



We want to know how many lunch boxes Lori can supply with 2 cookies each.

We know she has _____ cookies to share.

There are _____ cookies for each lunch.
To find how many lunches can be supplied with cookies, we

divide _____ by _____.

In all		In each		Boxes				
12	÷	2	=	6	or		6	quotient
↑		↑		↑		2)12		dividend
dividend		divisor		quotient		divisor		

Lori can supply 2 cookies each to _____ lunches.

Getting Started

Divide.

1. $6 \div 3 =$ ____
2. $14 \div 2 =$ ____
3. $8 \div 2 =$ ____
4. $24 \div 3 =$ ____
5. $15 \div 3 =$ ____
6. $6 \div 2 =$ ____
7. $2\overline{)16}$
8. $3\overline{)27}$
9. $3\overline{)18}$

Practice

Divide.

1. $10 \div 2 =$ ___
2. $12 \div 3 =$ ___
3. $24 \div 3 =$ ___
4. $18 \div 2 =$ ___
5. $21 \div 3 =$ ___
6. $18 \div 3 =$ ___
7. $27 \div 3 =$ ___
8. $15 \div 3 =$ ___

9. $3\overline{)12}$
10. $3\overline{)6}$
11. $2\overline{)14}$
12. $3\overline{)27}$
13. $2\overline{)16}$
14. $2\overline{)10}$
15. $3\overline{)9}$
16. $2\overline{)6}$

Apply

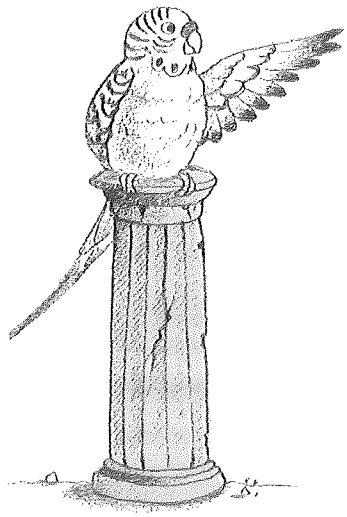
Solve these problems.

17. Joan and Angie each have 12 sweaters to store in boxes. Joan will store 3 sweaters in each box. Angie can only put 2 of her sweaters in a box. How many boxes will Joan and Angie both need for all their sweaters?

18. Pat is putting marbles into bags. He has 24 marbles and wants to put 3 marbles into each bag. How many bags will Pat need?

EXCURSION

Complete these tables of Hindu-Arabic numbers and Roman Numerals.



Hundreds

100	C
200	
	CCC
400	CD
500	D
	DC
700	DCC
	DCCC
	CM

Tens

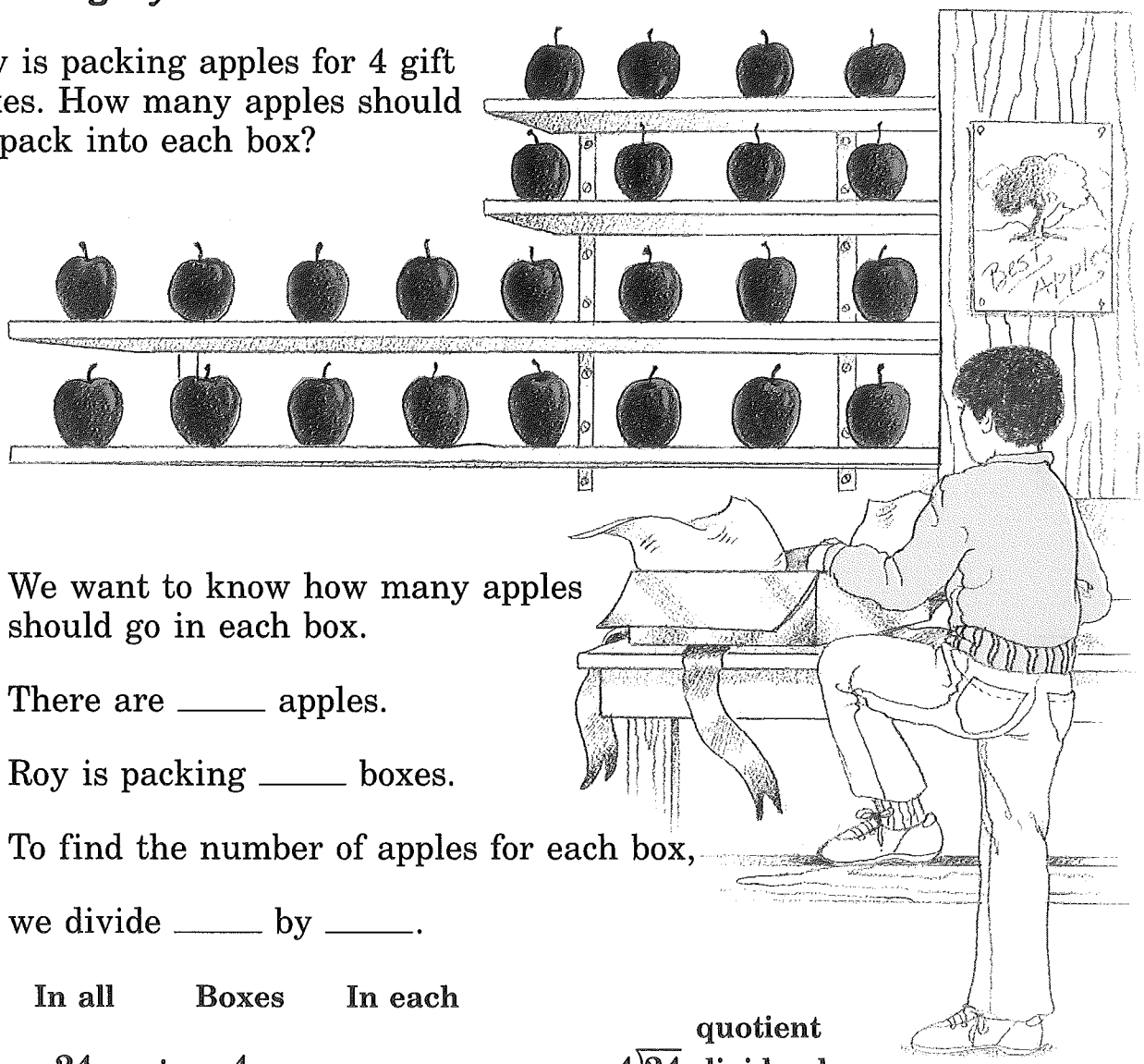
10	X
	XX
30	
40	XL
50	L
60	
	LXX
80	
	XC

Ones

1	I
	II
3	
4	IV
5	V
	VI
7	
8	
	IX

Dividing by 4 or 5

Roy is packing apples for 4 gift boxes. How many apples should he pack into each box?



We want to know how many apples should go in each box.

There are _____ apples.

Roy is packing _____ boxes.

To find the number of apples for each box,

we divide _____ by _____.

In all		Boxes		In each			quotient
24	÷	4	=	_____	or	$4\overline{)24}$	dividend
↑		↑		↑		↑	
dividend		divisor		quotient		divisor	

Roy should put _____ apples into each box.

Getting Started

Divide.

1. 36 ÷ 4 = ___
2. 45 ÷ 5 = ___
3. 16 ÷ 4 = ___
4. 20 ÷ 5 = ___

5. $5\overline{)30}$
6. $4\overline{)12}$
7. $4\overline{)36}$
8. $5\overline{)10}$

Practice

Divide.

1. $25 \div 5 =$ ___
2. $10 \div 5 =$ ___
3. $8 \div 4 =$ ___
4. $28 \div 4 =$ ___
5. $24 \div 4 =$ ___
6. $18 \div 3 =$ ___
7. $20 \div 5 =$ ___
8. $15 \div 5 =$ ___
9. $16 \div 4 =$ ___
10. $32 \div 4 =$ ___
11. $24 \div 3 =$ ___
12. $30 \div 5 =$ ___
13. $35 \div 5 =$ ___
14. $12 \div 4 =$ ___
15. $20 \div 4 =$ ___
16. $36 \div 4 =$ ___

17. $4\overline{)12}$
18. $5\overline{)25}$
19. $5\overline{)30}$
20. $2\overline{)18}$

21. $4\overline{)20}$
22. $4\overline{)16}$
23. $3\overline{)27}$
24. $4\overline{)28}$

25. $5\overline{)10}$
26. $5\overline{)20}$
27. $5\overline{)35}$
28. $4\overline{)8}$

29. $2\overline{)12}$
30. $4\overline{)24}$
31. $5\overline{)45}$
32. $5\overline{)40}$

Apply

Solve these problems.

33. There are 24 children in Miss Chen's class. The children sit at 4 tables. How many children are at each table?

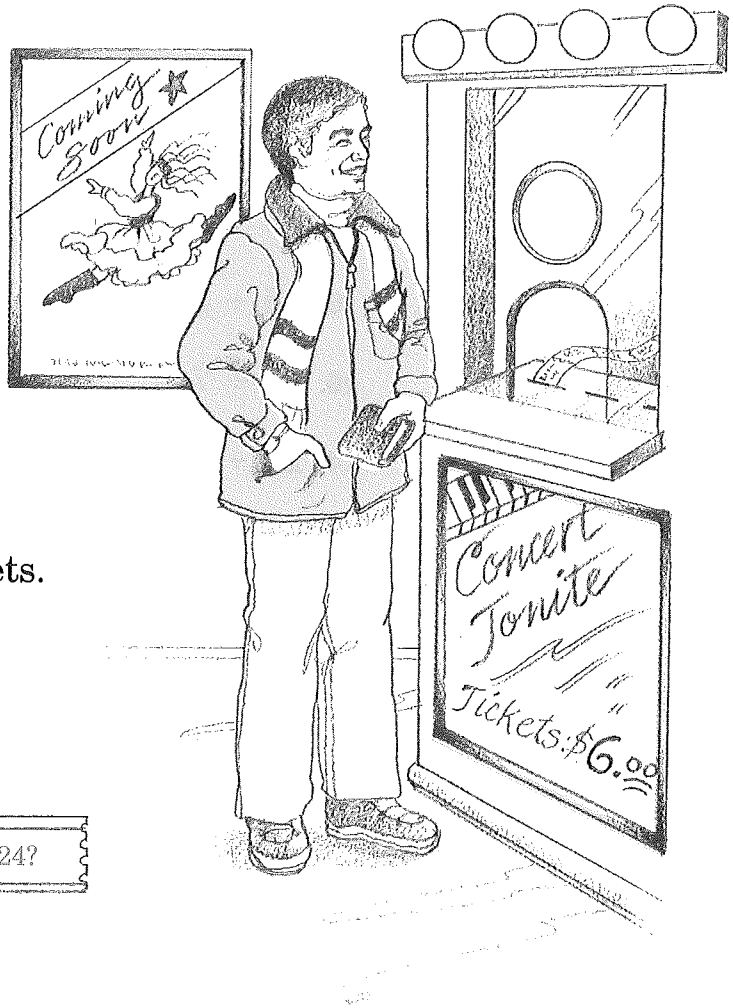
34. There are 20 children playing soccer. There are 5 teams. How many children are on each team?

35. There are 28 children in Mr. Orr's class. 4 children were absent on Tuesday. How many children were present in Mr. Orr's class?

36. Kay is sewing 5 buttons on each blouse. On Friday, Kay sewed on 30 buttons. How many blouses did Kay put buttons on?

Dividing by 6 or 7

Mr. Lopez spent $24 on concert tickets for his family. How many tickets did he buy?



We want to know the number of tickets Mr. Lopez bought.

He spent _____ on all the tickets.

Each ticket cost _____.
To find the number of tickets,

we divide _____ by _____.

___ × 6 = 24?	6 × ___ = 24?

24 ÷ 6 = _____ or 6)24

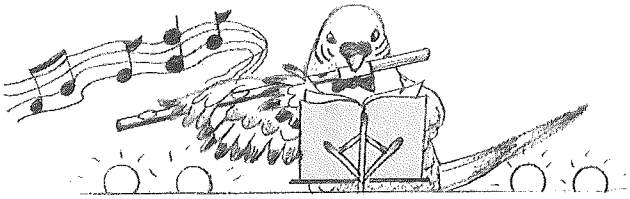
Mr. Lopez bought _____ tickets.

Getting Started

Divide.

1. 54 ÷ 6 = ___
2. 28 ÷ 7 = ___
3. 42 ÷ 6 = ___
4. 14 ÷ 7 = ___
5. 56 ÷ 7 = ___
6. 18 ÷ 6 = ___
7. 30 ÷ 6 = ___
8. 42 ÷ 7 = ___
9. 6)12
10. 6)24
11. 7)21
12. 7)35
13. 7)49
14. 6)36
15. 7)63
16. 6)48

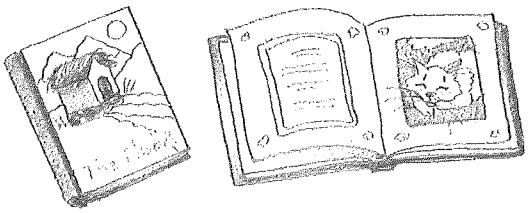
Practice



Divide.

1. $24 \div 3 =$ ___
2. $28 \div 4 =$ ___
3. $35 \div 7 =$ ___
4. $30 \div 6 =$ ___
5. $12 \div 6 =$ ___
6. $16 \div 2 =$ ___
7. $14 \div 7 =$ ___
8. $56 \div 7 =$ ___
9. $54 \div 6 =$ ___
10. $63 \div 7 =$ ___
11. $24 \div 6 =$ ___
12. $28 \div 7 =$ ___
13. $18 \div 6 =$ ___
14. $28 \div 4 =$ ___
15. $42 \div 7 =$ ___
16. $36 \div 6 =$ ___
17. $6\overline{)30}$
18. $6\overline{)36}$
19. $7\overline{)21}$
20. $7\overline{)49}$
21. $6\overline{)24}$
22. $7\overline{)42}$
23. $6\overline{)18}$
24. $7\overline{)28}$
25. $7\overline{)63}$
26. $5\overline{)40}$
27. $6\overline{)54}$
28. $6\overline{)48}$
29. $7\overline{)35}$
30. $4\overline{)32}$
31. $6\overline{)42}$
32. $7\overline{)56}$

Apply



Solve these problems.

33. Tickets for the school carnival and dinner were $7 each. The Johnson family paid $35 for tickets. How many Johnsons went to the carnival?

34. Ruth bought 6 albums for $8 each. Randy bought 7 albums for $7 each. How much more did Randy spend for his albums?

35. Danny bought 3 concert tickets for $5 each. Marta bought 2 tickets at $6 each. How much did they pay for all the tickets?

36. All children's books were on sale for $6 each. Rene bought books worth $30. How many books did Rene buy?

Dividing by 8 or 9

Mrs. Ferris is buying one place setting of dinnerware at a time to complete her set. How much will she pay for one place setting?

We want to find the cost of 1 place setting.

The sale price on the place setting is _____

for _____ of them.

To find the cost of one place setting, we divide

_____ by _____.

___ × 8 = $48? 8 × ___ = $48?

$48 ÷ 8 = _____ or 8)$48

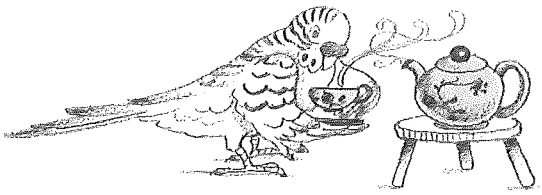
Mrs. Ferris will pay _____ for one place setting.

Getting Started

Divide.

1. 64 ÷ 8 = ___
2. 36 ÷ 9 = ___
3. 18 ÷ 9 = ___
4. 45 ÷ 9 = ___
5. 56 ÷ 8 = ___
6. 72 ÷ 8 = ___
7. 48 ÷ 8 = ___
8. 27 ÷ 9 = ___
9. 3)15
10. 8)32
11. 9)72
12. 9)54
13. 8)72
14. 9)63
15. 8)24
16. 8)40

Practice



Divide.

1. $36 \div 9 =$ ___
2. $42 \div 7 =$ ___
3. $48 \div 8 =$ ___
4. $64 \div 8 =$ ___
5. $27 \div 9 =$ ___
6. $81 \div 9 =$ ___
7. $56 \div 8 =$ ___
8. $16 \div 8 =$ ___
9. $18 \div 9 =$ ___
10. $45 \div 9 =$ ___
11. $25 \div 5 =$ ___
12. $63 \div 9 =$ ___
13. $48 \div 6 =$ ___
14. $24 \div 8 =$ ___
15. $72 \div 8 =$ ___
16. $32 \div 8 =$ ___

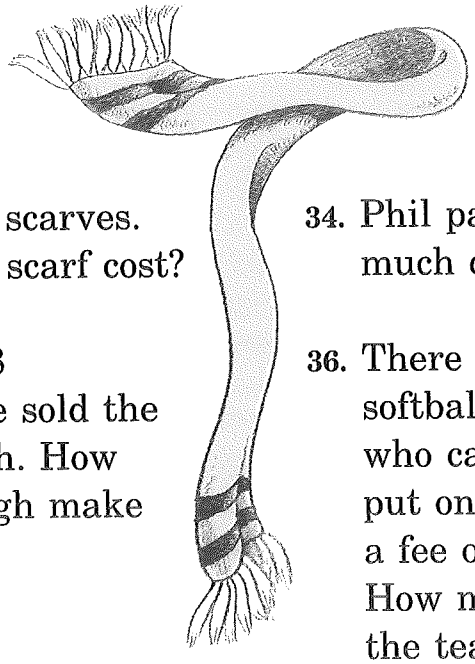
17. $8\overline{)32}$
18. $8\overline{)16}$
19. $6\overline{)36}$
20. $9\overline{)45}$

21. $9\overline{)63}$
22. $9\overline{)27}$
23. $8\overline{)72}$
24. $8\overline{)24}$

25. $9\overline{)36}$
26. $8\overline{)48}$
27. $4\overline{)16}$
28. $8\overline{)56}$

29. $3\overline{)9}$
30. $9\overline{)54}$
31. $9\overline{)18}$
32. $9\overline{)81}$

Apply



Solve these problems.

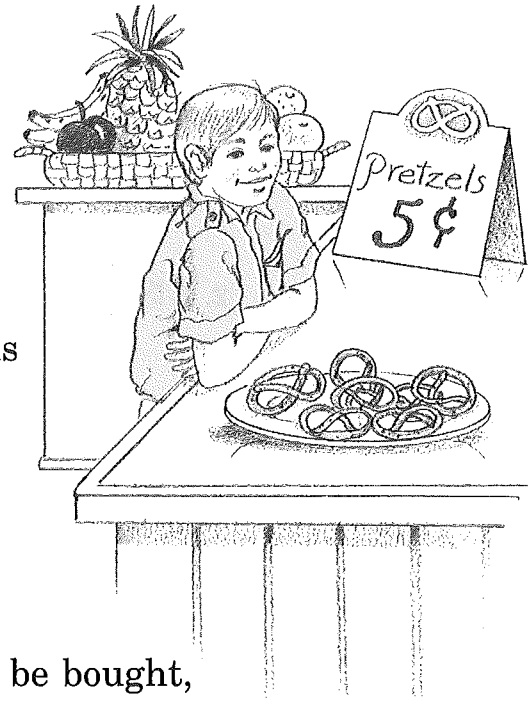
33. Katy paid \$24 for 8 scarves. How much did each scarf cost?

34. Phil paid 54¢ for 9 nails. How much did each nail cost?

35. Leigh paid \$40 for 8 baseballs. Later, she sold the baseballs for \$7 each. How much profit did Leigh make on each baseball?

36. There are 9 players on a softball team. All 45 people who came to practice were put on teams. Each team paid a fee of \$8 to use the field. How much was collected from the teams?

Working with Remainders



Keith wants to buy as many pretzels as he can for 43¢. How many can he buy? How much money will he have left?

We want to know the number of pretzels Keith will buy and the amount he will have left.

We know Keith has _____ to spend.

Each pretzel costs _____.

To find the number of pretzels that can be bought,

and the left-over money, we divide _____ by _____.

Guess the closest fact that is not too big.	Multiply.	Subtract.	The remainder must be less than the divisor.
8	8	8 pretzels	8 R3
5¢)43¢	5¢)43¢	5¢)43¢	5¢)43¢
	40 (8 × 5)	− 40	− 40
		3 remainder	3
			(3¢ < 5¢)

Keith can buy _____ pretzels. He will have _____ left.

Getting Started

Divide. Show your work.

1. 6)13
2. 4)23
3. 2)19
4. 7)32
5. 8)23

6. 9)30
7. 5)37
8. 3)25
9. 8)58
10. 6)39

Practice

Divide. Show your work.

1. $8\overline{)43}$
2. $5\overline{)39}$
3. $4\overline{)34}$
4. $9\overline{)86}$
5. $7\overline{)45}$
6. $2\overline{)13}$
7. $6\overline{)27}$
8. $3\overline{)28}$
9. $6\overline{)34}$
10. $4\overline{)30}$
11. $5\overline{)39}$
12. $9\overline{)51}$
13. $8\overline{)31}$
14. $7\overline{)29}$
15. $3\overline{)16}$

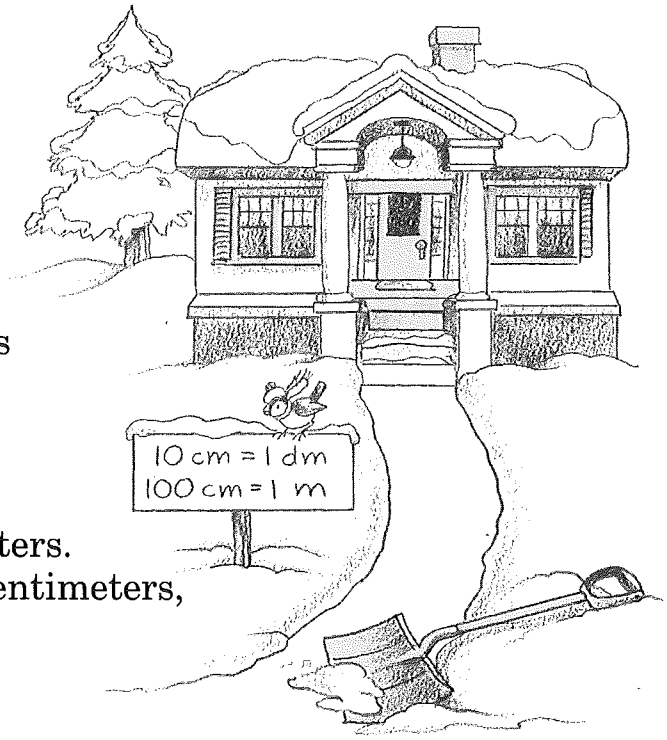
EXCURSION

Complete the tables.

Multiply	Add	Find Missing Factor	Find Missing Addend
$1 \times 9 =$ ____	$0 + 9 =$ ____	$9 \times$ ____ $= 9$	$0 +$ ____ $= 9$
$2 \times 9 =$ ____	$1 + 8 =$ ____	$9 \times$ ____ $= 18$	$1 +$ ____ $= 9$
$3 \times 9 =$ ____	$2 + 7 =$ ____	$9 \times$ ____ $= 27$	$2 +$ ____ $= 9$
$4 \times 9 =$ ____	$3 + 6 =$ ____	$9 \times$ ____ $= 36$	$3 +$ ____ $= 9$
$5 \times 9 =$ ____	$4 + 5 =$ ____	$9 \times$ ____ $= 45$	$4 +$ ____ $= 9$
$6 \times 9 =$ ____	$5 + 4 =$ ____	$9 \times$ ____ $= 54$	$5 +$ ____ $= 9$
$7 \times 9 =$ ____	$6 + 3 =$ ____	$9 \times$ ____ $= 63$	$6 +$ ____ $= 9$
$8 \times 9 =$ ____	$7 + 2 =$ ____	$9 \times$ ____ $= 72$	$7 +$ ____ $= 9$
$9 \times 9 =$ ____	$8 + 1 =$ ____	$9 \times$ ____ $= 81$	$8 +$ ____ $= 9$

9 MULTIPLYING WHOLE NUMBERS

Multiplying by Powers of 10



Ricky's job is shoveling snow from his front walk. The walk is 9 meters long. Find the length of Ricky's shoveling job in centimeters.

We want to know how many meters of walk Ricky has to shovel.

The walk is _____ meters long.

Each meter contains _____ centimeters.
To find the length of the walk in centimeters,

we multiply _____ by _____.

Study these multiplications.

$3 \times 1 = 3$	$4 \times 1 = 4$	$6 \times 2 = 12$	$9 \times 6 = 54$
$3 \times 10 = 30$	$4 \times 10 = 40$	$6 \times 20 = 120$	$9 \times 60 = 540$
$3 \times 100 = 300$	$4 \times 100 = 400$	$6 \times 200 = 1{,}200$	$9 \times 600 = 5{,}400$
$3 \times 1{,}000 = 3{,}000$	$4 \times 1{,}000 = 4{,}000$	$6 \times 2{,}000 = 12{,}000$	$9 \times 6{,}000 = 54{,}000$

> Multiply the digits that are not zeros.
> The product has the same number of zeros as there are zeros in the factors.

$9 \times 100 =$ _____

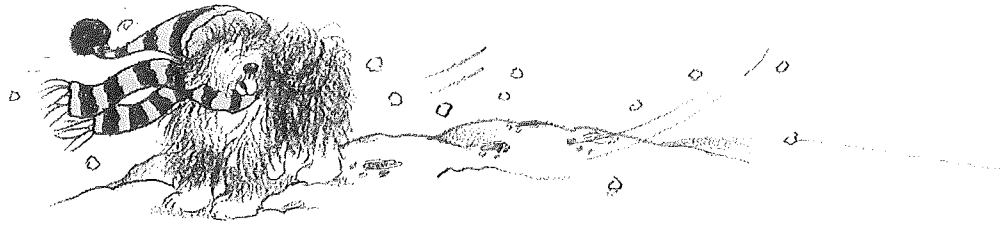
Ricky's front walk is _____ centimeters long.

Getting Started

Multiply.

1. $6 \times 100 =$ _____
2. $100 \times 5 =$ _____
3. $7 \times 1{,}000 =$ _____
4. $10 \times 9 =$ _____
5. $6{,}000 \times 7 =$ _____
6. $6 \times 9{,}000 =$ _____

Practice

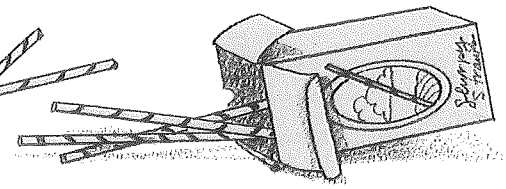


Multiply.

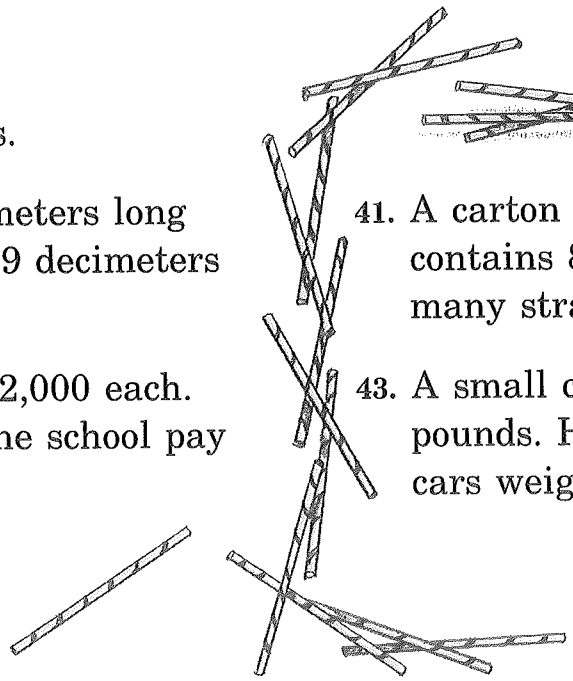
1. $5 \times 100 =$ _____
2. $6 \times 3{,}000 =$ _____
3. $20 \times 9 =$ _____
4. $10 \times 7 =$ _____
5. $1{,}000 \times 7 =$ _____
6. $80 \times 3 =$ _____
7. $400 \times 5 =$ _____
8. $2 \times 9{,}000 =$ _____
9. $9 \times 700 =$ _____
10. $800 \times 8 =$ _____
11. $3 \times 5{,}000 =$ _____
12. $7{,}000 \times 8 =$ _____
13. $4 \times 40 =$ _____
14. $300 \times 7 =$ _____
15. $6{,}000 \times 2 =$ _____
16. $6 \times 70 =$ _____
17. $5 \times 2{,}000 =$ _____
18. $80 \times 9 =$ _____
19. $600 \times 5 =$ _____
20. $4{,}000 \times 8 =$ _____
21. $30 \times 9 =$ _____
22. $7 \times 700 =$ _____
23. $5{,}000 \times 6 =$ _____
24. $300 \times 4 =$ _____
25. $80 \times 7 =$ _____
26. $6{,}000 \times 7 =$ _____
27. $4 \times 9{,}000 =$ _____
28. $5 \times 800 =$ _____
29. $3 \times 700 =$ _____
30. $8 \times 5{,}000 =$ _____
31. $2 \times 8{,}000 =$ _____
32. $9 \times 9{,}000 =$ _____
33. $6 \times 40 =$ _____
34. $7{,}000 \times 2 =$ _____
35. $500 \times 4 =$ _____
36. $9 \times 60 =$ _____
37. $6{,}000 \times 6 =$ _____
38. $4 \times 8{,}000 =$ _____
39. $400 \times 9 =$ _____

Apply

Solve these problems.



40. How many centimeters long is a table that is 9 decimeters in length?
41. A carton of drinking straws contains 800 straws. How many straws are in 7 cartons?
42. Computers cost $2,000 each. How much will the school pay for 7 computers?
43. A small car weighs 3,000 pounds. How much do 8 small cars weigh?



More Multiplying 3-digit Numbers

The distance from Denver to Seattle is approximately 3 times farther than the distance from Chicago to Pittsburgh. About how far is it from Seattle to Denver?

We want to know the approximate distance between Seattle and Denver.

The distance from Chicago to Pittsburgh

is _____ miles.

The distance from Seattle to Denver

is approximately _____ times that number.

To find the distance between Seattle and Denver,

we multiply _____ by _____.

Multiply the ones. Trade if needed.	Multiply the tens. Add any extra tens. Trade if needed.	Multiply the hundreds. Add any extra hundreds.
$\begin{array}{r} {}^{2} \\ 457 \\ \times\ \ 3 \\ \hline 1 \end{array}$	$\begin{array}{r} {}^{1\,2} \\ 457 \\ \times\ \ 3 \\ \hline 71 \end{array}$	$\begin{array}{r} {}^{1} \\ 457 \\ \times\ \ 3 \\ \hline 1{,}371 \end{array}$

It is about _____ miles from Seattle to Denver.

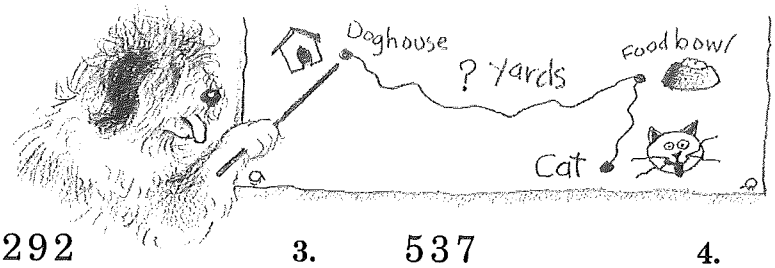
Getting Started

Multiply.

1. $\begin{array}{r} 525 \\ \times\ \ 7 \\ \hline \end{array}$
2. $\begin{array}{r} 289 \\ \times\ \ 4 \\ \hline \end{array}$
3. $\begin{array}{r} 328 \\ \times\ \ 8 \\ \hline \end{array}$
4. $\begin{array}{r} \$2.48 \\ \times\ \ 6 \\ \hline \end{array}$

Copy and multiply.

5. $\$5.96 \times 9$
6. 709×5
7. 492×3
8. 587×2



Practice

Multiply.

1. $\begin{array}{r} 357 \\ \times \quad 4 \\ \hline \end{array}$
2. $\begin{array}{r} 292 \\ \times \quad 8 \\ \hline \end{array}$
3. $\begin{array}{r} 537 \\ \times \quad 5 \\ \hline \end{array}$
4. $\begin{array}{r} 673 \\ \times \quad 2 \\ \hline \end{array}$
5. $\begin{array}{r} 896 \\ \times \quad 6 \\ \hline \end{array}$
6. $\begin{array}{r} 383 \\ \times \quad 7 \\ \hline \end{array}$
7. $\begin{array}{r} \$4.77 \\ \times \quad 3 \\ \hline \end{array}$
8. $\begin{array}{r} 709 \\ \times \quad 9 \\ \hline \end{array}$
9. $\begin{array}{r} 372 \\ \times \quad 8 \\ \hline \end{array}$
10. $\begin{array}{r} 628 \\ \times \quad 3 \\ \hline \end{array}$
11. $\begin{array}{r} 548 \\ \times \quad 6 \\ \hline \end{array}$
12. $\begin{array}{r} 419 \\ \times \quad 5 \\ \hline \end{array}$

Copy and Do

13. 5×386
14. 457×9
15. $\$6.75 \times 2$
16. 3×628
17. 727×8
18. $\$2.94 \times 5$
19. 7×929
20. 6×848

Apply

Solve these problems.

21. The Cammero family drove 346 miles on their vacation. The Johnsons drove 4 times as far as the Cammeros. How far did the Johnsons drive?

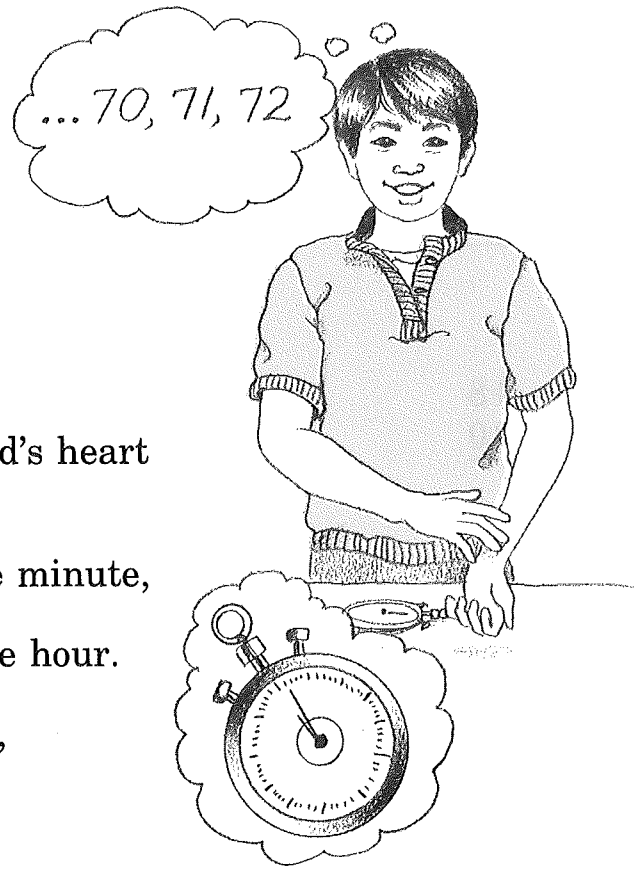
22. The distance from San Francisco to Los Angeles is 403 miles. Mr. Harris left San Francisco at 10:00 AM and drove 115 miles. How far does Mr. Harris still have to drive?

23. A jet airliner can hold 186 people. How many people can 7 jet airliners carry?

24. A china platter costs $6.75 and cereal bowls cost $3.95 each. How much would Sharon pay for a platter and set of 4 bowls?

Multiplying by Multiples of 10

Ronald is learning health skills in his CPR class. He is taking his pulse to find his heart rate for one minute. How many times will Ronald's heart beat in one hour?



We want to know how often Ronald's heart beats hourly.

His heart beats _____ times in one minute,

and there are _____ minutes in one hour.

To find Ronald's hourly heart rate,

we multiply _____ by _____.

Multiply by the digit in the ones place.	Multiply by the digit in the tens place.
$\begin{array}{r} 72 \\ \times\ 60 \\ \hline 0 \end{array}$	$\begin{array}{r} {\scriptstyle 1} \\ 72 \\ \times\ 60 \\ \hline 4{,}320 \end{array}$

Ronald's heart beats _____ times in one hour.

Getting Started

Multiply.

1. $\begin{array}{r} 36 \\ \times\ 20 \\ \hline \end{array}$
2. $\begin{array}{r} 35 \\ \times\ 40 \\ \hline \end{array}$
3. $\begin{array}{r} 50 \\ \times\ 60 \\ \hline \end{array}$
4. $\begin{array}{r} 125 \\ \times\ 30 \\ \hline \end{array}$

Copy and multiply.

5. 625×70
6. 820×80
7. 635×50
8. 708×90

Practice

Multiply.

1. $\begin{array}{r} 52 \\ \times\ 30 \\ \hline \end{array}$

2. $\begin{array}{r} 76 \\ \times\ 40 \\ \hline \end{array}$

3. $\begin{array}{r} 27 \\ \times\ 70 \\ \hline \end{array}$

4. $\begin{array}{r} 80 \\ \times\ 90 \\ \hline \end{array}$

5. $\begin{array}{r} 48 \\ \times\ 20 \\ \hline \end{array}$

6. $\begin{array}{r} 63 \\ \times\ 60 \\ \hline \end{array}$

7. $\begin{array}{r} 400 \\ \times\ 50 \\ \hline \end{array}$

8. $\begin{array}{r} 88 \\ \times\ 80 \\ \hline \end{array}$

9. $\begin{array}{r} 153 \\ \times\ 30 \\ \hline \end{array}$

10. $\begin{array}{r} 400 \\ \times\ 70 \\ \hline \end{array}$

11. $\begin{array}{r} 94 \\ \times\ 50 \\ \hline \end{array}$

12. $\begin{array}{r} 785 \\ \times\ 20 \\ \hline \end{array}$

Copy and Do

13. 40×253

14. 70×36

15. 90×573

16. 426×30

17. 651×60

18. 20×879

19. 89×50

20. 80×600

Apply

Solve these problems.

21. How many minutes are there in 36 hours?

22. How many seconds are there in 15 minutes?

23. Charlotte can walk 1 kilometer in 9 minutes. One day, Charlotte walked for 90 minutes. How many kilometers did she walk?

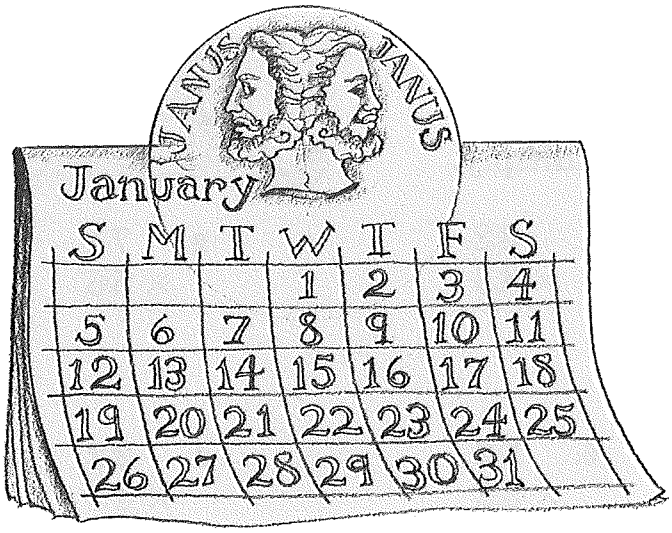
24. A container holds 245 milliliters of juice. The cafeteria used 80 containers. How many milliliters of juice did the cafeteria use?

25. The school photographer took 875 pictures. Each picture takes 40 seconds to develop. How many seconds will it take to develop the pictures?

26. Bobby read 16 chapters of a book. Each chapter was 30 pages long. Bobby took 50 minutes to read each chapter. How long did it take him to read the book?

Multiplying by 2-digit Numbers

January, usually the coldest month of the year, is named for the Roman god, Janus. How many hours are there in the month of January?



We want to know the total number of hours in January.

January has _____ days.

There are _____ hours in one day.

To find the total number of hours, we multiply _____ by _____.

Multiply by the ones.	Multiply by the tens.	Add the products.
31 × 24 124 ← 4 × 31	31 × 24 124 620 ← 20 × 31	31 × 24 124 620 744 ← 24 × 31

There are _____ hours in January.

Getting Started

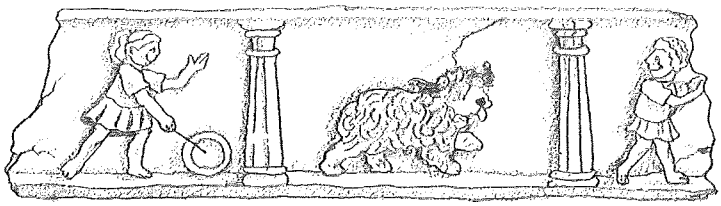
Multiply.

1. $\begin{array}{r} 23 \\ \times\ 32 \\ \hline \end{array}$
2. $\begin{array}{r} 42 \\ \times\ 24 \\ \hline \end{array}$
3. $\begin{array}{r} 50 \\ \times\ 35 \\ \hline \end{array}$
4. $\begin{array}{r} 64 \\ \times\ 22 \\ \hline \end{array}$

Copy and multiply.

5. 12 × 14
6. 21 × 28
7. 53 × 23
8. 96 × 11

Practice



Multiply.

1. $\begin{array}{r} 32 \\ \times\ 43 \\ \hline \end{array}$

2. $\begin{array}{r} 71 \\ \times\ 56 \\ \hline \end{array}$

3. $\begin{array}{r} 23 \\ \times\ 23 \\ \hline \end{array}$

4. $\begin{array}{r} 75 \\ \times\ 11 \\ \hline \end{array}$

5. $\begin{array}{r} 32 \\ \times\ 32 \\ \hline \end{array}$

6. $\begin{array}{r} 22 \\ \times\ 43 \\ \hline \end{array}$

7. $\begin{array}{r} 61 \\ \times\ 38 \\ \hline \end{array}$

8. $\begin{array}{r} 80 \\ \times\ 49 \\ \hline \end{array}$

9. $\begin{array}{r} 54 \\ \times\ 12 \\ \hline \end{array}$

10. $\begin{array}{r} 62 \\ \times\ 33 \\ \hline \end{array}$

11. $\begin{array}{r} 84 \\ \times\ 21 \\ \hline \end{array}$

12. $\begin{array}{r} 32 \\ \times\ 42 \\ \hline \end{array}$

Copy and Do

13. 41×38
14. 24×62
15. 63×33
16. 60×57
17. 76×81
18. 79×51
19. 96×11
20. 23×52

Apply

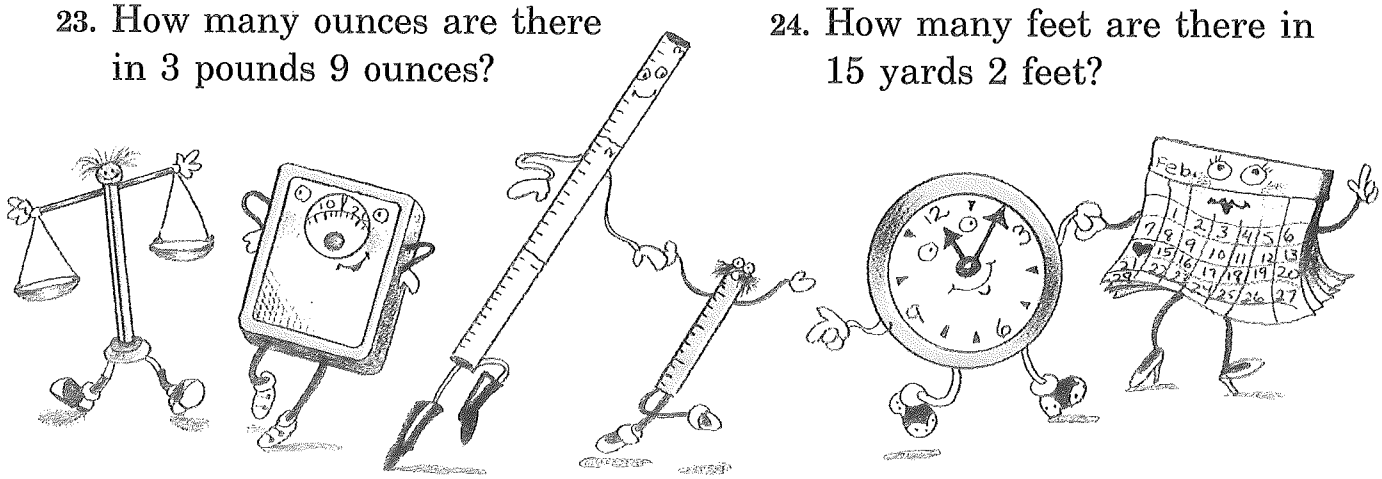
Solve these problems.

21. How many hours are there in 2 weeks and 5 days?

22. How many inches are there in 25 feet and 11 inches?

23. How many ounces are there in 3 pounds 9 ounces?

24. How many feet are there in 15 yards 2 feet?



10 DIVISION OF WHOLE NUMBERS

Dividing, 3-digit Quotients

Sidney and Alicia have 254 invitations to address for a PTA social. How many invitations will each girl have to do?

We want to know the number of invitations each girl will write.

All together, there are _____ invitations.

There are _____ girls doing the addressing. To find the number of invitations each girl will write, we divide _____ by _____.

Divide the hundreds.

```
  1
2)254
  2
  0
```

Each girl will write at least 100 invitations

Divide the tens.

```
  12
2)254
  2↓
   5
   4
   1
```

Each girl will write at least 120 invitations

Trade the extra ten for 10 ones. Divide the ones.

```
  127
2)254
  2
   5
   4↓
   14
   14
    0
```

Each girl will write 127 invitations

Sidney and Alicia will each have to write _____ invitations.

Getting Started

Divide. Show your work.

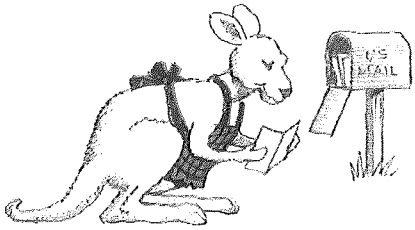
1. $3\overline{)636}$
2. $4\overline{)456}$

Copy and divide.

3. $392 \div 2$
4. $714 \div 6$

Practice

Divide. Show your work.



1. $3\overline{)366}$
2. $2\overline{)648}$
3. $5\overline{)555}$
4. $4\overline{)844}$
5. $3\overline{)651}$
6. $4\overline{)856}$
7. $2\overline{)658}$
8. $6\overline{)672}$
9. $4\overline{)968}$
10. $7\overline{)791}$
11. $3\overline{)759}$
12. $2\overline{)938}$

Copy and Do

13. $575 \div 5$
14. $736 \div 4$
15. $832 \div 2$
16. $864 \div 3$
17. $996 \div 2$
18. $579 \div 3$
19. $912 \div 4$
20. $597 \div 3$

Apply

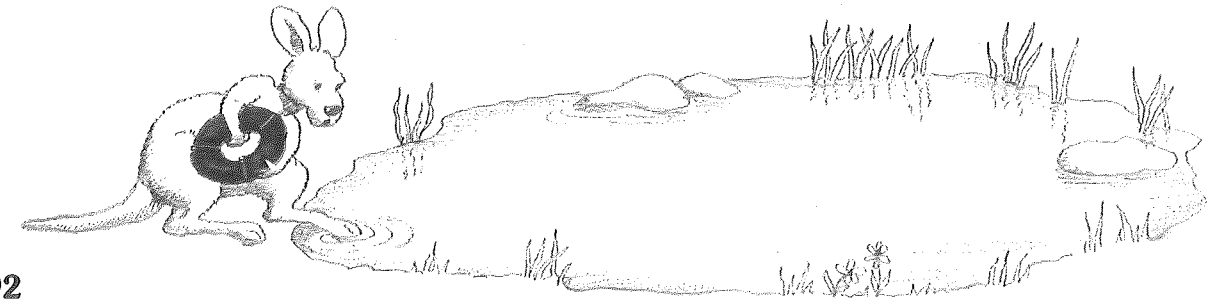
Solve these problems.

21. A computer printer printed 924 lines in 4 minutes. How many lines were printed each minute?

22. Ivan helped his grandfather box up his collection of 462 books that he will donate to 3 school libraries. How many books will each library receive?

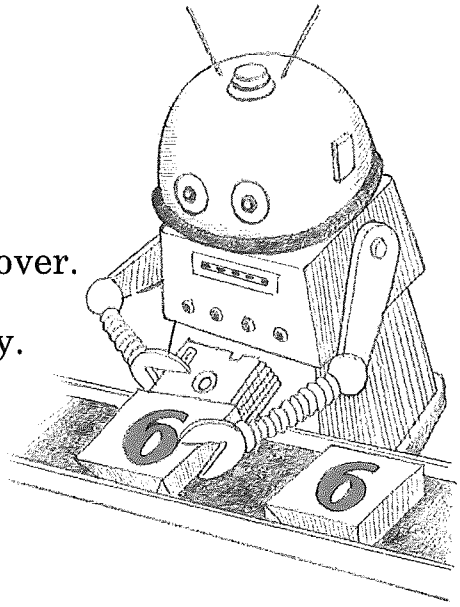
23. There are 3 feet in 1 yard. Change 486 feet to yards.

24. The pond is 165 yards wide. How wide is the pond in feet?



Dividing, Remainders

The Quick Computer Company manufactures computer disks. In one day, the company made 748 disks. How many packages did the company produce? How many disks were left over?



We want to find the number of packages of disks produced and the number of disks left over.

Quick Computer made _____ disks in one day.

There are _____ disks in a package.
To find the number of packages, we divide

_____ by _____. The remainder is the number of disks left over.

Divide the hundreds.	Divide the tens.	Divide the ones.
$\begin{array}{r} 1 \\ 6\overline{)748} \\ 6\downarrow \\ \hline 14 \end{array}$	$\begin{array}{r} 12 \\ 6\overline{)748} \\ 6 \\ \hline 14 \\ 12\downarrow \\ \hline 28 \end{array}$	$\begin{array}{r} 124\ R4 \\ 6\overline{)748} \\ 6 \\ \hline 14 \\ 12 \\ \hline 28 \\ 24 \\ \hline 4 \end{array}$
Divide. $6\overline{)7}$ 1 Multiply. $6 \times 1 = 6$ Subtract. $7 - 6 = 1$ Compare. $1 < 6$ Bring down the tens.	Divide. $6\overline{)14}$ 2 Multiply. $6 \times 2 = 12$ Subtract. $14 - 12 = 2$ Compare. $2 < 6$ Bring down the ones.	Divide. $6\overline{)28}$ 4 Multiply. $6 \times 4 = 24$ Subtract. $28 - 24 = 4$ Compare. $4 < 6$ Write the remainder.

The company made _____ packages.

There were _____ disks left over.

Getting Started

Divide. Show your work.

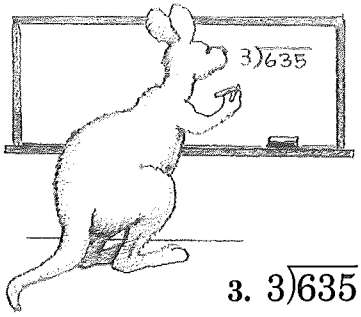
1. $4\overline{)849}$
2. $5\overline{)673}$

Copy and divide.

3. $793 \div 2$
4. $796 \div 6$

Practice

Divide. Show your work.

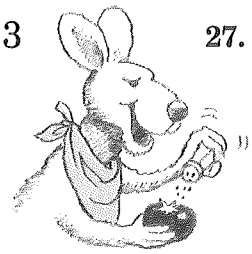


1. $4\overline{)449}$
2. $6\overline{)682}$
3. $3\overline{)635}$
4. $2\overline{)869}$
5. $5\overline{)594}$
6. $4\overline{)925}$
7. $7\overline{)784}$
8. $6\overline{)826}$
9. $8\overline{)916}$
10. $5\overline{)727}$
11. $2\overline{)916}$
12. $7\overline{)919}$
13. $4\overline{)857}$
14. $6\overline{)885}$
15. $3\overline{)558}$
16. $5\overline{)962}$

Copy and Do

17. $437 \div 2$
18. $789 \div 4$
19. $896 \div 8$
20. $416 \div 3$
21. $775 \div 6$
22. $815 \div 5$
23. $593 \div 2$
24. $779 \div 7$
25. $956 \div 7$
26. $651 \div 3$
27. $912 \div 5$
28. $852 \div 4$

Apply



Solve these problems.

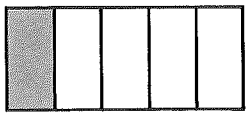
29. Li is packing tomato plants into boxes that hold 5 plants each. Li has 598 plants. How many boxes will she need? How many plants will be left over?

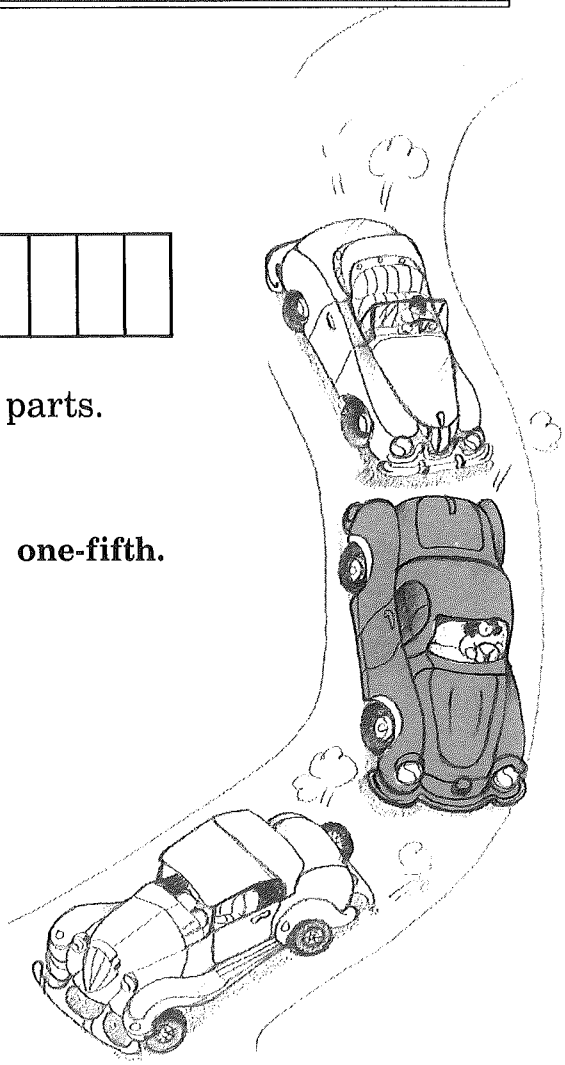
30. Mr. Hawthorne is putting 4 chairs at each table in his cafe. If Mr. Hawthorne has 462 chairs, how many tables can he supply?

12 FRACTIONS

Fractional Parts

Fractions can help you talk about a part of a figure, or some of a set of things.
What part of this rectangle is red?
What part of this set of cars is not red?





The rectangle is divided into _____ equal parts.

_____ part is red.

We write: $\frac{1}{5}$ ← **numerator** ← **denominator** We say: **one-fifth.**

_____ of the rectangle is red.

There are _____ cars.

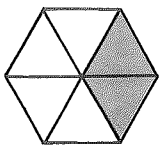
_____ cars are not red.

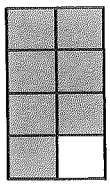
We write: $\frac{2}{3}$. We say: **two-thirds.**

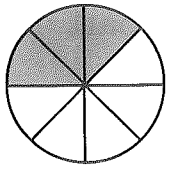
_____ of the cars are not red.

Getting Started

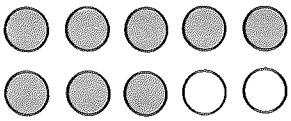
Write a fraction to show what part of each figure is red.

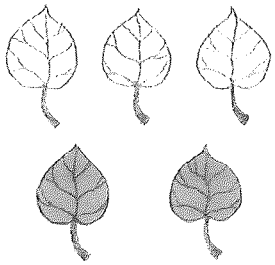
1. 

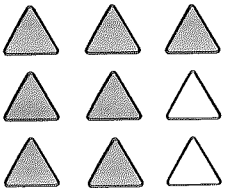
2. 

3. 

Write a fraction to show what part of each set is *not* red.

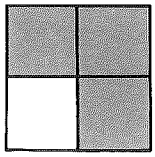
4. 

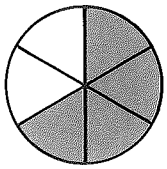
5. 

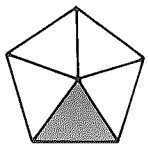
6. 

Practice

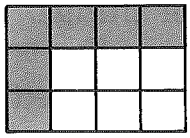
Write a fraction to show what part of each figure is red.

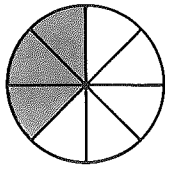
1. 

2. 

3. 

4. 

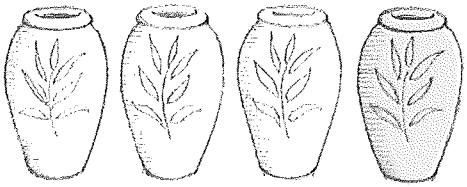
5. 

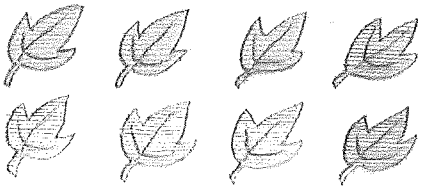
6. 

Write a fraction to show what part of each set is *not* red.

7. 

8. 

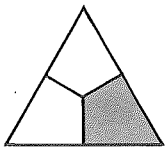
9. 

10. 

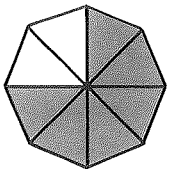
Apply

Solve these problems.

11. What part of the triangle is red?

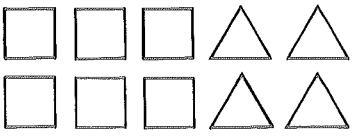


12. What part of the octagon is *not* red?



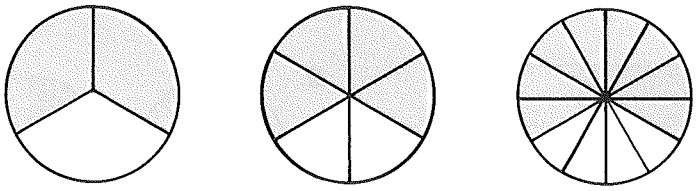
13. What part of the set of coins are pennies?

14. Write a fraction to show what part of the set of figures are squares.



Understanding Equivalent Fractions

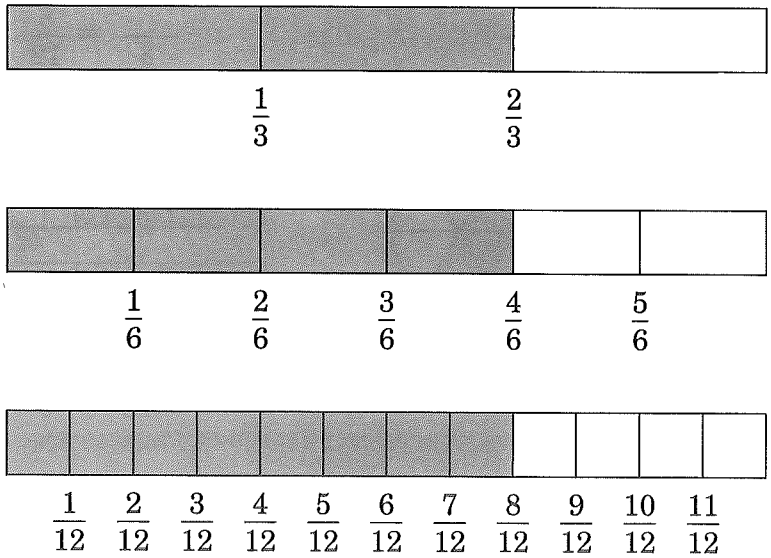
Fractions that name the same amount are called **equivalent fractions.** Name the two fractions that are equivalent to $\frac{2}{3}$.



We want to find two fractions

that are equivalent to ____.

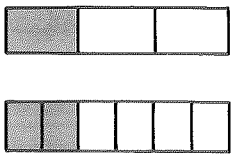
Each large rectangle below is the same size. We can shade in the same amount of space in each rectangle to find equivalent **thirds, sixths** and **twelfths.**



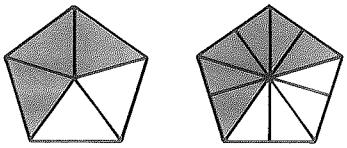
$\frac{2}{3}$, ____ and ____ are equivalent fractions.

Getting Started

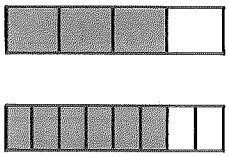
Write the missing numerators.

1. 

$\frac{1}{3} = \frac{\_\_}{6}$

2. 

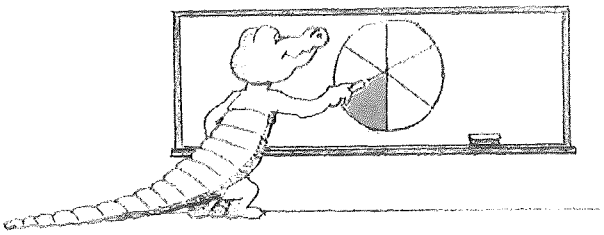
$\frac{3}{5} = \frac{\_\_}{10}$

3. 

$\frac{\_\_}{4} = \frac{6}{8}$

Practice

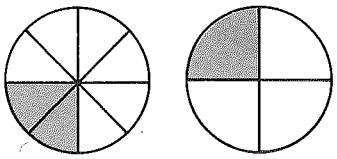
Write the missing numerators.



1.

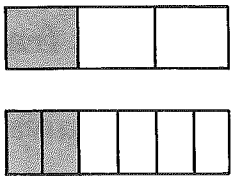
$\frac{1}{2} = \frac{\_\_}{4}$

2.



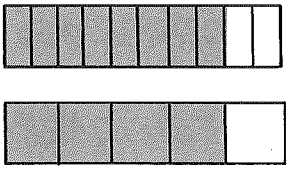
$\frac{\_\_}{8} = \frac{1}{4}$

3.



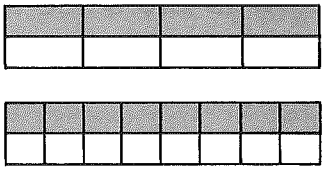
$\frac{1}{3} = \frac{\_\_}{6}$

4.



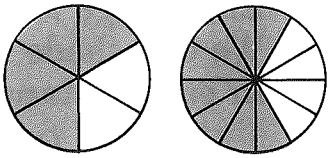
$\frac{8}{10} = \frac{\_\_}{5}$

5.



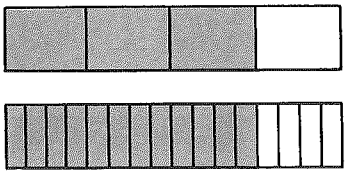
$\frac{4}{8} = \frac{\_\_}{16}$

6.



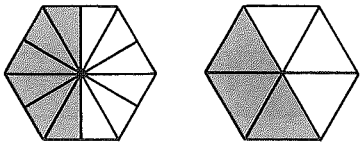
$\frac{\_\_}{6} = \frac{8}{12}$

7.



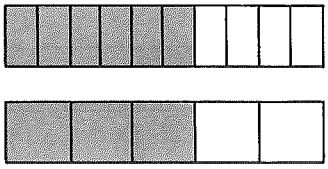
$\frac{3}{4} = \frac{\_\_}{16}$

8.



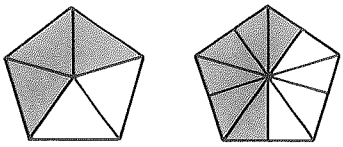
$\frac{6}{12} = \frac{\_\_}{6}$

9.



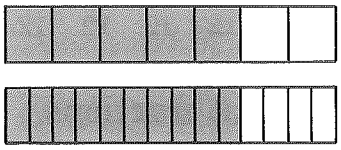
$\frac{\_\_}{10} = \frac{3}{5}$

10.



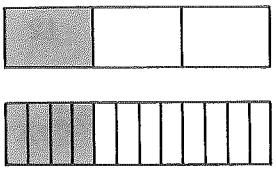
$\frac{\_\_}{5} = \frac{6}{10}$

11.



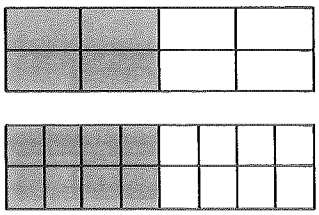
$\frac{5}{7} = \frac{\_\_}{14}$

12.



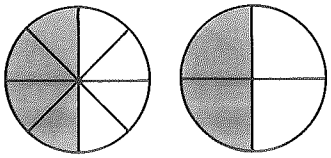
$\frac{\_\_}{3} = \frac{4}{12}$

13.



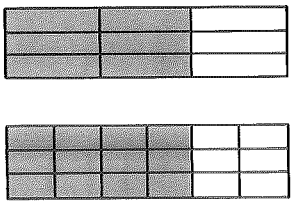
$\frac{4}{8} = \frac{\_\_}{16}$

14.



$\frac{\_\_}{8} = \frac{2}{4}$

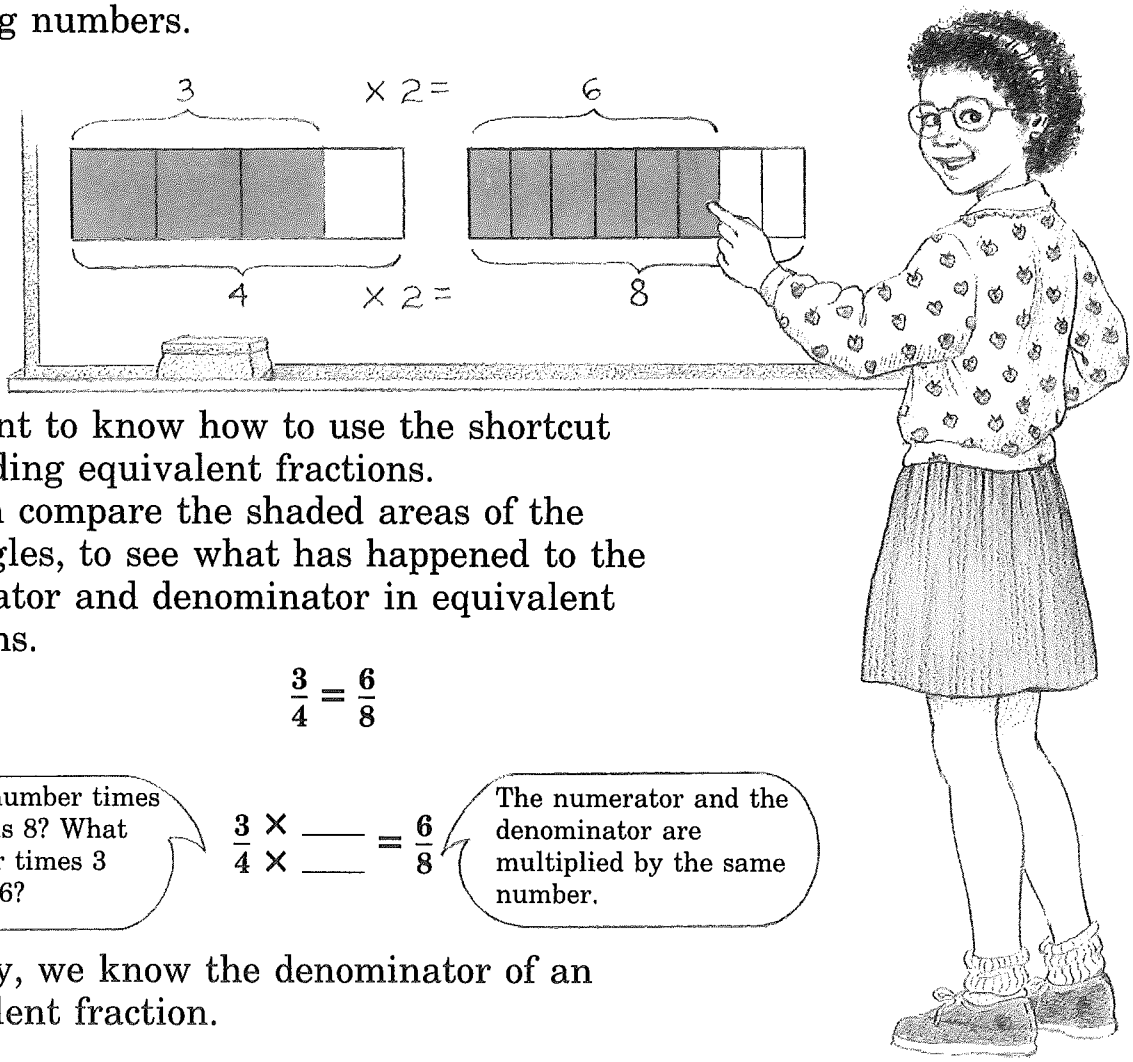
15.



$\frac{6}{9} = \frac{\_\_}{18}$

Finding Equivalent Fractions

Bobbi discovered a shortcut for finding equivalent fractions. Use her shortcut to find the missing numbers.



We want to know how to use the shortcut for finding equivalent fractions.
We can compare the shaded areas of the rectangles, to see what has happened to the numerator and denominator in equivalent fractions.

$$\frac{3}{4} = \frac{6}{8}$$

What number times 4 equals 8? What number times 3 equals 6?

$$\frac{3 \times \_\_\_}{4 \times \_\_\_} = \frac{6}{8}$$

The numerator and the denominator are multiplied by the same number.

Usually, we know the denominator of an equivalent fraction.

What number times 3 equals 12?

$$\frac{2}{3} = \frac{\_\_\_}{12}$$

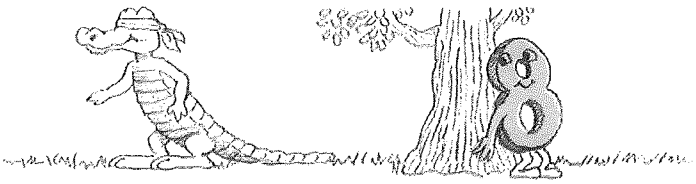
Multiply the numerator by the same number.

Getting Started

Write the missing numerators.

1. $\frac{1}{4} = \frac{\_\_\_}{8}$
2. $\frac{1}{3} = \frac{\_\_\_}{9}$
3. $\frac{1}{6} = \frac{\_\_\_}{24}$
4. $\frac{2}{3} = \frac{\_\_\_}{12}$
5. $\frac{3}{4} = \frac{\_\_\_}{16}$
6. $\frac{4}{5} = \frac{\_\_\_}{30}$
7. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{\_\_\_}{8} = \frac{\_\_\_}{10} = \frac{\_\_\_}{12} = \frac{\_\_\_}{14} = \frac{\_\_\_}{16} = \frac{\_\_\_}{18}$

Practice



Write the missing numerators.

1. $\frac{1}{4} = \frac{\_\_}{12}$
2. $\frac{5}{6} = \frac{\_\_}{18}$
3. $\frac{3}{5} = \frac{\_\_}{15}$
4. $\frac{4}{7} = \frac{\_\_}{21}$
5. $\frac{2}{3} = \frac{\_\_}{12}$
6. $\frac{5}{6} = \frac{\_\_}{24}$
7. $\frac{5}{8} = \frac{\_\_}{24}$
8. $\frac{3}{10} = \frac{\_\_}{20}$
9. $\frac{5}{9} = \frac{\_\_}{18}$
10. $\frac{7}{8} = \frac{\_\_}{64}$
11. $\frac{3}{9} = \frac{\_\_}{27}$
12. $\frac{3}{4} = \frac{\_\_}{16}$
13. $\frac{4}{5} = \frac{\_\_}{20}$
14. $\frac{3}{7} = \frac{\_\_}{28}$
15. $\frac{5}{8} = \frac{\_\_}{16}$
16. $\frac{1}{9} = \frac{\_\_}{45}$
17. $\frac{4}{7} = \frac{\_\_}{21}$
18. $\frac{5}{9} = \frac{\_\_}{54}$
19. $\frac{3}{4} = \frac{\_\_}{32}$
20. $\frac{4}{5} = \frac{\_\_}{30}$
21. $\frac{6}{11} = \frac{\_\_}{33}$
22. $\frac{5}{12} = \frac{\_\_}{72}$
23. $\frac{3}{16} = \frac{\_\_}{96}$
24. $\frac{5}{24} = \frac{\_\_}{72}$
25. $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{\_\_}{12} = \frac{\_\_}{15} = \frac{\_\_}{18} = \frac{\_\_}{21} = \frac{\_\_}{24} = \frac{\_\_}{27}$
26. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{\_\_}{12} = \frac{\_\_}{15} = \frac{\_\_}{18} = \frac{\_\_}{21} = \frac{\_\_}{24} = \frac{\_\_}{27}$
27. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{\_\_}{16} = \frac{\_\_}{20} = \frac{\_\_}{24} = \frac{\_\_}{28} = \frac{\_\_}{32} = \frac{\_\_}{36}$
28. $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{\_\_}{16} = \frac{\_\_}{20} = \frac{\_\_}{24} = \frac{\_\_}{28} = \frac{\_\_}{32} = \frac{\_\_}{36}$
29. $\frac{1}{5} = \frac{2}{10} = \frac{3}{15} = \frac{\_\_}{20} = \frac{\_\_}{25} = \frac{\_\_}{30} = \frac{\_\_}{35} = \frac{\_\_}{40} = \frac{\_\_}{45}$
30. $\frac{1}{6} = \frac{2}{12} = \frac{3}{18} = \frac{\_\_}{24} = \frac{\_\_}{30} = \frac{\_\_}{36} = \frac{\_\_}{42} = \frac{\_\_}{48} = \frac{\_\_}{54}$