Topic 3 Multiplying Whole Numbers

RETEACHING

Set A, pages 58–59

Property of Multiplication	Example
Commutative	$4 \times 8 = 8 \times 4$ $32 = 32$
Associative	$(4 \times 5) \times 6 = 4 \times (5 \times 6)$ $120 = 120$
Zero	$12 \times 0 = 0$
Identity	$9 \times 1 = 9$

Remember to use the multiplication properties to determine what number must be in the box.

1. $256 \times \square = 256$
   1
2. $157{,}678 \times 0 = \square$
   0
3. $7{,}000 \times \square = 20 \times 7{,}000$
   20
4. $(12 \times 3) \times 4 = 12 \times (\square \times 4)$
   3
5. $\square \times 1 = 1{,}234{,}005$
   1,234,005
6. $40 \times 60 = 60 \times \square$
   40

Set B, pages 60–61

Find $3{,}000 \times 500$.

Step 1 Find the product of the non-zero digits. $3 \times 5 = 15$

Step 2 Count the total number of zeros in both factors. 5 zeros

Step 3 Place the total number of zeros after the product of the non zero digits. 1,500,000

Remember to count the total number of zeros in both factors.

Find each product.

1. 12×30 — 360
2. 600×40 — 24,000
3. $10 \times 9{,}000$ — 90,000
4. $5{,}000 \times 80$ — 400,000
5. $9 \times 10 \times 800$ — 72,000
6. $7{,}000 \times 400 \times 3$ — 8,400,000
7. $8 \times 5 \times 22{,}000$ — 880,000

Set C, pages 62–63

Estimate 37×88.

Step 1 Round both factors. 37 is about 40 and 88 is about 90.

Step 2 Use mental math and multiply the rounded factors. $40 \times 90 = 3{,}600$

Remember to either round the factors or use compatible numbers.

Estimate each product.
Sample answers are given.

1. 7×396 — 2,800
2. 17×63 — 1,200
3. 91×51 — 4,500
4. 70×523 — 35,000
5. 32×400 — 12,000
6. 116×787 — 80,000
7. $4 \times 24 \times 91$ — 9,000
8. $29 \times 51 \times 67$ — 105,000

Set D, pages 64–66; 68–69; 70–71

Find 425×38.

Step 1 Multiply the ones.

$$\begin{array}{r} {\scriptstyle 24} \\ 425 \\ \times\ 38 \\ \hline 3400 \end{array}$$

Step 2 Multiply the tens.

$$\begin{array}{r} {\scriptstyle 1} \\ 425 \\ \times\ 38 \\ 3400 \\ \hline 12750 \end{array}$$

Step 3 Add the partial products.

$$\begin{array}{r} 425 \\ \times\ 38 \\ 3400 \\ +\ 12750 \\ \hline 16{,}150 \end{array}$$

Remember to regroup if necessary. Estimate to check that your answer is reasonable.

Find each product.

1. 54×9 — 486
2. 92×6 — 552
3. 189×3 — 567
4. 708×5 — 3,540
5. 67×48 — 3,216
6. 81×19 — 1,539
7. 51×605 — 30,855
8. 32×871 — 27,872

Set E, pages 72–73

Write 7^3 in expanded form and standard form.

Tip *The base is 7. The exponent is 3.*

Exponential notation: 7^3
Expanded form: $7 \times 7 \times 7$
Standard form: 343

Remember that the exponent tells how many times the base is used as a factor.

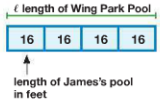
Write each in expanded form and standard form. 1–4 See margin.

1. 17^2
2. 10^5
3. 2^6
4. 5^4

Set F, pages 74–76

Draw a picture and write an equation. Solve.

The length of James's pool is 16 ft. The length of the pool at Wing Park is 4 times as long. How long is the pool at Wing Park?



Let ℓ = the length of Wing Park pool.

$16 \times 4 = \ell$

$\ell = 64$ ft

$$\begin{array}{r} {\scriptstyle 2} \\ 16 \\ \times\ 4 \\ \hline 64 \end{array}$$

The length of Wing Park pool is 64 ft.

Remember that a picture can help you visualize an equation.

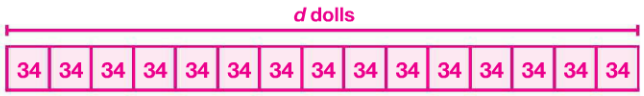
Solve.

1. Mia has a collection of 34 dolls. A toy store's warehouse has 15 times as many dolls. How many dolls are in the warehouse? See margin.
2. Lea has given 23 surveys at school. She needs to give twice this amount before the end of the week. How many more surveys does Lea need to give? See margin.

Answers, Set E

1. 17×17; 289
2. $10 \times 10 \times 10 \times 10 \times 10$; 100, 000
3. $2 \times 2 \times 2 \times 2 \times 2 \times 2$; 64
4. $5 \times 5 \times 5 \times 5$; 625

Answers, Set F

1. 

$34 \times 15 = d$; $d = 510$ dolls

2. 

$23 \times 2 = s$; $s = 46$ more surveys