Developmental Mathematics
Chapter 1 Review

<table>
<tr><td colspan="3">Objective [1.1a] Convert from standard notation to expanded notation.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Determine the place value of each digit and write a sum.</td><td>Write expanded notation for 12,309.

12,309 = 1 ten thousand + 2 thousands + 3 hundreds + 0 tens + 9 ones, or 1 ten thousand + 2 thousands + 3 hundreds + 9 ones</td><td>1. Write expanded notation for 2087.
A. 2 thousands + 8 tens + 7 ones
B. 2 thousands + 8 hundreds + 7 ones
C. 2 hundreds + 8 tens + 7 ones
D. 2 thousands + 8 hundreds + 7 tens</td></tr>
<tr><td colspan="3">Objective [1.1b] Convert from expanded notation to standard notation.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Write standard notation using place values for each digit.</td><td>Write standard notation for 5 thousands + 6 hundreds + 1 one.

This is equivalent to 5 thousands + 6 hundreds + 0 tens + 1 one, so standard notation is 5601.</td><td>2. Write standard notation for 6 ten thousands + 4 hundreds + 1 ten + 9 ones.
A. 6419
B. 60,419
C. 64,019
D. 64,190</td></tr>
<tr><td colspan="3">Objective [1.1c] Write a word name for a number given standard notation.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Starting with the period at the left, write the number named in each period followed by the name of the period.</td><td>Write a word name for 36,760,235.

The first period denotes millions. There are thirty-six millions. The second period denotes thousands. There are seven hundred sixty thousands. The last period denotes ones. There are two hundred thirty-five ones. Thus, a word name for 36,760,235 is thirty-six million,seven hundred sixty thousand, two hundred thirty-five.</td><td>3. Write a word name for 5,487,203.
A. 5 millions + 487 thousands + 2 hundreds + 3 ones
B. 5 millions + 4 hundred thousands + 8 ten thousands + 7 thousands + 2 hundreds + 3 ones
C. Five million, four hundred eighty-seven thousand, two hundred three
D. Five million, four hundred eighty-seven thousand, twenty-three</td></tr>
</table>

<table>
<tr><td colspan="3">Objective [1.1d] Write standard notation for a number given a word name.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Starting with the period at the left, write standard notation for the number named in each period.</td><td>Write standard notation for eighty-six million, one hundred twenty-three thousand, seven hundred sixty-one.

The number named in the millions period is 86, the number named in the thousands period is 123, and the number named in the ones period is 761. We write each of these numbers in order, separating them with commas. Thus standard notation is 86,123,761.</td><td>4. Write standard notation for four hundred sixty-five thousand, eight hundred thirteen.
A. 465,813,000,000
B. 465,000 + 813
C. 465,000,813
D. 465,813</td></tr>
<tr><td colspan="3">Objective [1.1e] Given standard notation like 278,342, tell what 8 means, what 3 means, and so on; identify the hundreds digit, the thousands digit,and so on.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>To tell what a given digit means, find the digit and identify the place value.</td><td>What does the digit 7 mean in 4,678,952?

4,6 $\boxed{7}$ 8,9 5 2

7 means 7 ten thousands.</td><td>5. What does the 2 mean in 516,204?
A. 2 ones
B. 2 tens
C. 2 hundreds
D. 2 thousands</td></tr>
<tr><td>To determine which digit has a specific place value, locate the place and identify the digit in it.</td><td>In 816,304,259, which digit tells the number of hundreds?

8 1 6,3 0 4, $\boxed{2}$ 5 9
The digit 2 tells the number of hundreds.</td><td>6. In 124,806,357, which digit tells the number of ten thousands?
A. 0
B. 1
C. 5
D. 6</td></tr>
<tr><td colspan="3">Objective [1.1f] Use $<$ or $>$ for $\square$ to write a true sentence in a situation like $6 \square 10$.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>If the first number given lies to the left of the other on a number line, use $<$. If the first number lies to the right of the other, use $>$.</td><td>Use $<$ or $>$ for $\square$ to write a true sentence: $23 \square 16$.

Since 23 is to the right of 16 on a number line, $23 > 16$.</td><td>7. Use $<$ or $>$ for $\square$ to write a true sentence: $33 \square 36$.
A. $<$
B. $>$</td></tr>
<tr><td colspan="3">Objective [1.2a] Write an addition sentence that corresponds to a situation.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Read carefully, looking for numbers that are being combined. Write an addition sentence showing these numbers combined and their sum.</td><td>Write an addition sentence that corresponds to this situation.
Chris buys an accounting textbook costing $45 and a solutions manual costing $18. What was the total cost?

Cost of text + Cost of manual = Total cost
$45 + $18 = $63</td><td>8. Write an addition sentence that corresponds to this situation.
Jared ran 3 miles on Monday and 5 miles on Wednesday. How far did he run on Monday and Wednesday?
A. 5 mi − 3 mi = 2 mi
B. 3 mi + 3 mi = 6 mi
C. 3 mi + 5 mi = 8 mi
D. 5 mi + 5 mi = 10 mi</td></tr>
</table>

<table>
<tr><td colspan="3">Objective [1.2b] Add whole numbers.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Add the ones digits first, then the tens, then the hundreds, and so on, carrying as necessary.</td><td>Add: 8429 + 4098.
$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 8\ 4\ 2\ 9 \\ +\ 4\ 0\ 9\ 8 \\ \hline 1\ 2,5\ 2\ 7 \end{array}$</td><td>9. Add: 27,609 + 38,415.
A. 6624
B. 66,014
C. 66,024
D. 66,124</td></tr>
<tr><td colspan="3">Objective [1.2c] Write a subtraction sentence that corresponds to a situation involving “take away.”</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Read carefully, looking for words that indicate an initial quantity and a quantity being taken away from it. Write a subtraction sentence showing this.</td><td>Write a subtraction sentence that corresponds to the situation.
Ryan has $568 in his checking account. He spends $312 for books. How much is left in his account?
Beginning amount $568 − Amount spent $312 = Amount left $256</td><td>10. Write a subtraction sentence that corresponds to the situation. You need not carry out the subtraction.
Tilara buys a box of 10 computer disks and uses 4 of them. How many are left?
A. $10 + 4 = \square$
B. $4 + 6 = \square$
C. $10 - 6 = \square$
D. $10 - 4 = \square$</td></tr>
<tr><td colspan="3">Objective [1.2d] Given a subtraction sentence, write a related addition sentence;
and given an addition sentence,write two related subtraction sentences.</td></tr>
<tr><td>Brief Procedure</td><td>Example</td><td>Practice Exercise</td></tr>
<tr><td>Given a subtraction sentence, write a related addition sentence by adding the number being taken away (the subtrahend) to the difference.</td><td>Write a related addition sentence for $13 - 8 = 5$.
$13 - 8 = 5$
↑
This number gets added (after 5).
↓
$13 = 5 + 8$
We could also write $13 = 8 + 5$.</td><td>11. Write a related addition sentence for $9 - 3 = 6$.
A. $9 - 6 = 3$
B. $9 = 6 + 3$
C. $9 + 3 = 12$
D. $9 + 6 = 15$</td></tr>
<tr><td>Given an addition sentence, write two related subtraction sentences by subtracting one of the numbers being added (an addend) from the sum.</td><td>Write two related subtraction sentences for $8 + 6 = 14$.
We can subtract 6 from 14 to get one related subtraction sentence:
$8 = 14 - 6$
We can also subtract 8 from 14:
$6 = 14 - 8$</td><td>12. Write two related subtraction sentences for $4 + 7 = 11$.
A. $4 = 11 - 7,\ 7 = 11 - 4$
B. $4 + 7 = 11,\ 7 + 4 = 11$
C. $3 = 7 - 4,\ 4 = 7 - 3$
D. $6 = 11 - 5,\ 5 = 11 - 6$</td></tr>
</table>

Objective [1.2e] Write a subtraction sentence that corresponds to a situation involving "how much more."

Brief Procedure	Example	Practice Exercise
First consider an addition sentence with a missing addend. Then write a related subtraction sentence.	Write a subtraction sentence that corresponds to the situation. You need not carry out the subtraction. Michiyo has \$196 and wants to buy a \$340 fax machine. How much more does she need? Addition sentence: $\$196 + \square = \$340$ Related subtraction sentence: $\square = \$340 - \$196$	13. Write a subtraction sentence that corresponds to the situation. You need not carry out the subtraction. The members of a service club have collected 127 cans of food for a food pantry. Their goal is to collect 500 cans. How many more cans do they need? A. $\square = 500 + 127$ B. $127 + \square = 500$ C. $\square = 500 - 127$ D. $500 = \square - 127$

Objective [1.2f] Subtract whole numbers.

Brief Procedure	Example	Practice Exercise
Subtract ones first, then tens, then hundreds, and so on, borrowing when necessary.	Subtract: $8045 - 2897$. $\begin{array}{r} {\scriptstyle 13} \\ 7\ 9\ \not{3}\ {\scriptstyle 15} \\ \not{8}\ \not{0}\ \not{4}\ \not{5} \\ -\ 2\ 8\ 9\ 7 \\ \hline 5\ 1\ 4\ 8 \end{array}$	14. Subtract: $6401 - 3629$ A. 2772 B. 2782 C. 2882 D. 10,030

Objective [1.3a] Write a multiplication sentence that corresponds to a situation.

Brief Procedure	Example	Practice Exercise
Read carefully, looking for numbers and words that indicate multiplication. Write a multiplication sentence showing this.	Write a multiplication sentence that corresponds to the situation: There are 24 hours in a day. How many hours are there in 3 days? We visualize the situation. $\boxed{24 \text{ hr}} + \boxed{24 \text{ hr}} + \boxed{24 \text{ hr}}$ $3 \cdot 24 \text{ hr} = 72 \text{ hr}$	15. Write a multiplication sentence that corresponds to the situation: A book of stamps contains 20 stamps. How many stamps are there in 6 books? A. $6 + 20 = 26$ B. $6 \cdot 6 = 36$ C. $6 \cdot 20 = 120$ D. $20 \cdot 20 = 400$

Objective [1.3b] Multiply whole numbers.

Brief Procedure	Example	Practice Exercise
First multiply by ones, then by tens, then by hundreds, and so on, and add.	Multiply: 37×415. $\begin{array}{r} {\scriptstyle 1} \\ {\scriptstyle 1\ 3} \\ 4\ 1\ 5 \\ \times\ \ 3\ 7 \\ \hline 2\ 9\ 0\ 5 \leftarrow\ 415 \times 7 \\ 1\ 2\ 4\ 5\ 0 \leftarrow\ 415 \times 30 \\ \hline 1\ 5,3\ 5\ 5 \end{array}$	16. Multiply: 238×764. A. 9932 B. 23,432 C. 117,932 D. 181,832

Objective [1.3c] Write a division sentence that corresponds to a situation.

Brief Procedure	Example	Practice Exercise
Read carefully looking for words and numbers that indicate division. Write a division sentence showing this.	Write a division sentence that corresponds to this situation. There are 28 student desks in a college classroom, and there are 7 desks in each row. How many rows are there? Think of a rectangular array with 7 desks in each row. How many rows will there be? $28 \div 7 = \square$	17. Write a division sentence that corresponds to this situation. Five friends spend \$35 for lunch and split the check equally among themselves. How much is each person's portion? A. $35 \div 5 = \square$ B. $5 \times \square = 35$ C. $35 \div 7 = \square$ D. $35 \times 5 = \square$

Objective [1.3d] Given a division sentence, write a related multiplication sentence and given a multiplication sentence, write two related division sentences.

Brief Procedure	Example	Practice Exercise
Given a division sentence, write a related multiplication sentence by using Dividend = Quotient $\times$ Divisor.	Write a related multiplication sentence for $36 \div 4 = 9$. The 4 moves to the right. $36 \div 4 = 9$ A related multiplication sentence is $36 = 9 \cdot 4$. We could also write $36 = 4 \cdot 9$.	18. Write a related multiplication sentence for $42 \div 6 = 7$. A. $42 \div 7 = 6$ B. $42 \div 21 = 2$ C. $42 = 2 \cdot 21$ D. $42 = 6 \cdot 7$
Given a multiplication sentence, write two related division sentences by dividing the product by each of the factors.	Write two related division sentences for $4 \cdot 6 = 24$. Move a factor to the other side and then write a division. $4 \times 6 = 24$ $\quad$ $4 \times 6 = 24$ $4 = 24 \div 6$ $\quad$ $6 = 24 \div 4$	19. Write two related division sentences for $9 \cdot 8 = 72$. A. $8 \cdot 9 = 72,\ 4 \cdot 18 = 72$ B. $9 = 72 \div 8,\ 8 = 72 \div 9$ C. $12 = 72 \div 6,\ 6 = 72 \div 12$ D. $12 \cdot 6 = 72,\ 6 \cdot 12 = 72$

Objective [1.3e] Divide whole numbers.

Brief Procedure	Example	Practice Exercise
Start with the digit of highest place value in the dividend and work down to the lowest through the remainders. At each step ask if there are multiples of the divisor in the quotient.	Divide: $8973 \div 36$. $\begin{array}{r} 249 \\ 36\overline{)8973} \\ 7200 \\ \hline 1773 \\ 1440 \\ \hline 333 \\ 324 \\ \hline 9 \end{array}$ The answer is 249 R 9.	20. Divide: $8519 \div 27$. A. 254 B. 254 R 9 C. 315 D. 315 R 14

Objective [1.3f] Round to the nearest ten, hundred, or thousand; and estimate sums, differences, and products by rounding.

Brief Procedure	Example	Practice Exercise
To round to the nearest ten, hundred, or thousand: a) Locate the digit in the place to be rounded. b) Consider the next digit to the right. c) If the digit to the right is 5 or higher, round up; if the digit to the right is 4 or lower, round down. d) Change all digits to the right of the rounding location to zeros.	Round 8365 to the nearest hundred. $8\,3\,\boxed{6}\,5$ $\uparrow$ The digit 3 is in the hundreds place. Consider the next digit to the right. Since the digit, 6, is 5 or higher, round 3 hundreds up to 4 hundreds. Then change all digits to the right of the hundreds digit to zeros. The answer is 8400.	21. Round 27,459 to the nearest thousand. A. 26,000 B. 27,000 C. 27,500 D. 28,000
To estimate sums, differences, and products by rounding, round each part of the sum, difference, or product to the specified place. Then add, subtract, or multiply.	Estimate this difference by first rounding to the nearest hundred: $7546 - 3271$. $7\,5\,0\,0$ $-\,3\,3\,0\,0$ $4\,2\,0\,0 \leftarrow$ Estimated answer	22. Estimate this sum by first rounding to the nearest thousand. $2\,7\,6\,4$ $9\,0\,7\,6$ $+\,4\,5\,2\,8$ A. 15,000 B. 16,000 C. 17,000 D. 18,000

Objective [1.4a] Solve simple equations by trial.

Brief Procedure	Example	Practice Exercise
Try various replacements for the variable. A replacement that yields a true equation is a solution of the equation.	Solve $x + 5 = 12$ by trial. Ask: 5 plus what number is 12? The only correct answer is 7, so the solution is 7.	23. Solve $x - 2 = 6$ by trial. A. 3 B. 4 C. 8 D. 12

Objective [1.4b] Solve equations like $t + 28 = 54$, $28 \cdot x = 168$, and $98 \div 2 = y$.

Brief Procedure	Example	Practice Exercise
To solve $x + a = b$, subtract a on both sides.	Solve: $t + 15 = 32$. $t + 15 = 32$ $t + 15 - 15 = 32 - 15$ $t + 0 = 17$ $t = 17$ The solution is 17.	24. Solve: $y + 8 = 9$ A. 1 B. 17 C. 18 D. 72
To solve $a \cdot x = b$, divide by a on both sides.	Solve: $16 \cdot n = 416$. $16 \cdot n = 416$ $\frac{16 \cdot n}{16} = \frac{416}{16}$ $n = 26$ The solution is 26.	25. Solve: $24 \cdot y = 912$ A. 24 B. 38 C. 888 D. 21,888

Objective [1.4b] continued

Brief Procedure	Example	Practice Exercise
To solve an equation like $98 \div 2 = y$, carry out the calculation.	Solve: $2808 \div 18 = x$. $\begin{array}{r} 156 \\ 18\overline{)2808} \\ 1800 \\ \hline 1008 \\ 900 \\ \hline 108 \\ 108 \\ \hline 0 \end{array}$ The solution is 156.	26. Solve: $2806 \div 61 = n$ A. 46 B. 2745 C. 2867 D. 171,166

Objective [1.5a] Solve applied problems involving addition, subtraction, multiplication, or division of whole numbers.

Brief Procedure	Example	Practice Exercise
1. *Familiarize* yourself with the situation. 2. *Translate* the problem to an equation. 3. *Solve* the equation. 4. *Check* the answer in the original problem. 5. *State* the answer clearly.	Margaret borrows \$8820 to buy a car. The loan is to be paid off in 36 equal monthly payments. How much is each payment (excluding interest)? 1. *Familiarize*. Visualize a rectangular array of dollar bills with 36 rows. How many dollars are in each row? Let p = the amount of each payment. 2. *Translate*. We translate to an equation. $\underbrace{\text{Amount of loan}}_{\downarrow\ 8820} \div \underbrace{\text{Number of payments}}_{\downarrow\ 36} = \underbrace{\text{Amount of each payment}}_{\downarrow\ p}$ 3. *Solve*. We carry out the division. $\begin{array}{r} 245 \\ 36\overline{)8820} \\ 7200 \\ \hline 1620 \\ 1440 \\ \hline 180 \\ 180 \\ \hline 0 \end{array}$ 4. *Check*. We can repeat the calculation. We can also multiply the number of payments by the amount of each payment: $36 \cdot 245 = 8820$. The answer checks. 5. *State*. Each payment is \$245.	27. Rex is driving from Las Vegas to Chicago, a distance of 1749 miles. He travels 1399 miles to Des Moines. How much farther must he travel? A. 350 mi B. 1399 mi C. 1749 mi D. 3148 mi

Objective [1.6a] Write exponential notation for products such as $4 \cdot 4 \cdot 4$.

Brief Procedure	Example	Practice Exercise
Count the number of identical factors. Make that number the exponent, using the repeated factor as the base.	Write exponential notation for $6 \cdot 6 \cdot 6 \cdot 6$. $\underbrace{6 \cdot 6 \cdot 6 \cdot 6}_{\text{4 factors}} = 6^4$	28. Write exponential notation for $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$. A. 32 B. $5 \cdot 2$ C. 5^2 D. 2^5

Objective [1.6b] Evaluate exponential notation.

Brief Procedure	Example	Practice Exercise
Rewrite the exponential notation as a product and compute.	Evaluate: 3^4. $3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$	29. Evaluate: 5^3. A. 15 B. 125 C. 243 D. 625

Objective [1.6c] Simplify expressions using the rules for order of operations.

Brief Procedure	Example	Practice Exercise
1. Do all calculations within parentheses, brackets, or braces before operations outside. 2. Evaluate all exponential expressions. 3. Do all multiplications and divisions in order from left to right. 4. Do all additions and subtractions in order from left to right.	Simplify: $64 \div 4^2 \cdot 3 + (12 - 7)$. $64 \div 4^2 \cdot 3 + (12 - 7)$ $= 64 \div 4^2 \cdot 3 + 5$ $= 64 \div 16 \cdot 3 + 5$ $= 4 \cdot 3 + 5$ $= 12 + 5$ $= 17$	30. Simplify: $9 + (19 - 9)^2 \div 5 \cdot 2$. A. 19 B. 49 C. 121 D. 220

Objective [1.6d] Remove parentheses within parentheses.

Brief Procedure	Example	Practice Exercise
Do computations within the innermost parentheses first and work outward.	Simplify: $7 + \{15 - [2 \times (6 - 4)]\}$. $7 + \{15 - [2 \times (6 - 4)]\}$ $= 7 + \{15 - [2 \times 2]\}$ $= 7 + \{15 - 4\}$ $= 7 + 11$ $= 18$	31. Simplify: $25 + \{3 \times [18 - (2 + 6)]\}$. A. 55 B. 91 C. 344 D. 750

Objective [1.7a] Find the factors of a number.

Brief Procedure	Example	Practice Exercise
Find factorizations of the number.	Find all the factors of 36. $36 = 1 \cdot 36$ $\quad$ $36 = 4 \cdot 9$ $36 = 2 \cdot 18$ $\quad$ $36 = 6 \cdot 6$ $36 = 3 \cdot 12$ Factors: 1, 2, 3, 4, 6, 9, 12, 18, 36	32. Find all the factors of 20. A. 4, 5 B. 2, 10 C. 2, 4, 5, 10 D. 1, 2, 4, 5, 10, 20

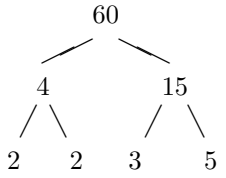
Objective [1.7b] Find some multiples of a number, and determine whether a number is divisible by another.

Brief Procedure	Example	Practice Exercise
To find some multiples of a number, multiply the number by a natural number.	Multiply by 1, 2, 3, and so on to find ten multiples of 8. $1 \cdot 8 = 8$ $\quad$ $6 \cdot 8 = 48$ $2 \cdot 8 = 16$ $\quad$ $7 \cdot 8 = 56$ $3 \cdot 8 = 24$ $\quad$ $8 \cdot 8 = 64$ $4 \cdot 8 = 32$ $\quad$ $9 \cdot 8 = 72$ $5 \cdot 8 = 40$ $\quad$ $10 \cdot 8 = 80$	33. Multiply by 1, 2, 3, and so on to find ten multiples of 15. A. One of the multiples is 135. B. One of the multiples is 125. C. One of the multiples is 10. D. One of the multiples is 5.
To determine whether a number is divisible by another, determine whether division of the number by the other number results in a remainder of zero.	Determine whether 86 is divisible by 2 or by 4. $2\overline{)86}$ $\quad$ $4\overline{)86}$ $8\,0$ $\quad$ $8\,0$ 6 $\quad$ 6 6 $\quad$ 4 0 $\quad$ 2 Since the remainder is 0 when 86 is divided by 2, 86 is divisible by 2. When 86 is divided by 4, the remainder is not 0 so 86 is not divisible by 4.	34. Determine whether 188 is divisible by 8. A. Yes B. No

Objective [1.7c] Given a number from 1 to 100, tell whether it is prime, composite, or neither.

Brief Procedure	Example	Practice Exercise
Determine exactly how many different factors the number has. A prime number has exactly two different factors, itself and 1. A natural number, other than 1, that is not prime is composite.	Tell whether each of the numbers 1, 17, and 24 is prime, composite, or neither. 1 does not have two *different* factors. It is neither prime nor composite. 17 has only the factors 1 and 17. It is prime. 24 has more than two different factors. It is composite.	35. Determine whether 57 is prime, composite,or neither. A. Prime B. Composite C. Neither

Objective [1.7d] Find the prime factorization of a composite number.

Brief Procedure	Example	Practice Exercise
Perform a string of successive divisions of the number by prime divisors or use a factor tree.	Find the prime factorization of 60. Successive divisions: $5 \leftarrow 5$ is prime. $3 \overline{)\,1\ 5}$ $2 \overline{)\,3\ 0}$ $2 \overline{)\,6\ 0}$ $60 = 2 \cdot 2 \cdot 3 \cdot 5$ Factor tree:  $60 = 2 \cdot 2 \cdot 3 \cdot 5$	36. Find the prime factorization of 63. A. $3 \cdot 21$ B. $9 \cdot 7$ C. $1 \cdot 3 \cdot 3 \cdot 7$ D. $3 \cdot 3 \cdot 7$

Objective [1.8a] Determine whether a number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10.

Brief Procedure	Example	Practice Exercise
Use the following tests: A number is divisible by 2 if it has a ones digit of 0, 2, 4, 6, or 8. (That is, it has an even ones digit.) A number is divisible by 3 if the sum of its digits is divisible by 3. A number is divisible by 4 if the number named by its last two digits is divisible by 4. A number is divisible by 5 if its ones digit is 0 or 5. A number is divisible by 6 if it is even and the sum of its digits is divisible by 3. (That is, the number is divisible by both 2 and 3.) A number is divisible by 8 if the number named by its last three digits is divisible by 8. A number is divisible by 9 if the sum of its digits is divisible by 9. A number is divisible by 10 if its ones digit is 0.	Determine whether 56,340 is divisible by 2, 3, 4, 5, 6, 8, 9, or 10. The ones digit, 0, is even, so 56,340 is divisible by 2. 5+6+3+4+0 = 18 and 18 is divisible by 3, so 56,340 is divisible by 3. The number named by the last 2 digits, 40, is divisible by 4, so 56,340 is divisible by 4. The ones digit is 0, so 56,340 is divisible by 5. The ones digit is even and the sum of the digits 18, is divisible by 3, so 56,340 is divisible by 6. The number named by the last three digits, 340, is not divisible by 8, so 56,340 is not divisible by 8. The sum of the digits, 18, is divisible by 9, so 56,340 is divisible by 9. The ones digit is 0, so 56,340 is divisible by 10.	37. Select the true statement. A. 2620 is divisible by 2, 4, 5, 8, and 10. B. 9166 is divisible by 2, 3, and 6. C. 18,225 is divisible by 3, 5, and 9. D. 42,616 is divisible by 2, 3, 4, and 6.

Objective [1.9a] Find the LCM of two or more numbers using a list of multiples or factorizations.		
Brief Procedure	Example	Practice Exercise
To find the LCM of two or more numbers using a list of multiples: First determine whether the largest number is a multiple of all the other numbers. If so, it is the least common multiple, or LCM . If not, check multiples of the largest number until you get one that is a multiple of the others. That number is the LCM.	Find the LCM of 15 and 18 using a list of multiples. First observe that 18 is not a multiple of 15. Then check multiples: $2 \cdot 18 = 36$ Not a multiple of 15 $3 \cdot 18 = 54$ Not a multiple of 15 $4 \cdot 18 = 72$ Not a multiple of 15 $5 \cdot 18 = 90$ A multiple of 15 The LCM is 90.	38. Find the LCM of 12 and 16 using a list of multiples. A. 16 B. 36 C. 48 D. 192
To find the LCM of two or more numbers using factorizations, a) Find the prime factorization of each number. b) Create a product of factors, using each factor the greatest number of times that it occurs in any one factorization.	Find the LCM of 9 and 21. a) $9 = 3 \cdot 3,\ 21 = 3 \cdot 7$ b) Consider the factor 3. The greatest number of times that 3 occurs in any one factorization is two. LCM is $3 \cdot 3 \cdot$? Consider the factor 7. The greatest number of times that 7 occurs in any one factorization is one. LCM is $3 \cdot 3 \cdot 7 \cdot$? Since there are no other prime factors in either factorization, the LCM is $3 \cdot 3 \cdot 7 \cdot$, or 63.	39. Find the LCM of 8 and 20 using factorizations. A. 20 B. 40 C. 80 D. 160