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## Multiplication \& Division Facts

1 Complete the multiplication facts.

| 0 | 7 | 8 | 3 | 6 | 3 | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\times 5$ | $\times 4$ | $\times 6$ | $\times 4$ | $\times 6$ | $\times 6$ | $\times 8$ |
| 4 | 6 | 7 | 8 | 1 | 3 | 5 |
| $\times 4$ | $\times 8$ | $\times 7$ | $\times 4$ | $\times 9$ | $\times 7$ | $\times 6$ |
| 10 | 5 | 8 | 9 | 4 | 7 | 6 |
| $\times 4$ | $\times 5$ | $\times 8$ | $\times 3$ | $\times 9$ | $\times 5$ | $\times 7$ |

2 Complete the division facts.
$42 \div 6=$ $\qquad$ $54 \div 6=$ $\qquad$ $24 \div 3=$ $\qquad$
$63 \div 9=$ $\qquad$ $28 \div 4=$ $\qquad$
$7 \div 1=$
$\qquad$

3 Write a greater than, less than, or equal sign to complete each number sentence. Try to complete each number sentence without doing all the calculations.

| example $36+4<26+20$ | a $2 \times 24 \quad 2 \times 16$ |
| :---: | :---: |
| b $400 \div 80 \quad 400 \div 10$ | C 77-20 67-20 |
| d $36+23 \quad 46+16$ | e 458-129 358-29 |
| f $3 \times 360$ ( $40 \times 30$ | $550 \times 400 \quad 400 \times 50$ |
| h $2,500 \div 10 \quad 1,000 \div 5$ | - $\mathbf{2}$ i $2,000 \div 6 \quad 48,000 \div 12$ |

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## Multiplication Practice

1 Solve the following multiplication problems.


2 Solve each problem below using the partial products method shown.

| 135 | 27 | 29 | 57 |
| ---: | ---: | ---: | ---: |
| $\times 4$ |  |  |  |
| $4 \times 100=400$ | -6 |  |  |
| $4 \times 30=120$ |  |  |  |
| $4 \times 5=+20$ |  |  |  |
| 540 |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 53 | 108 | 217 | 433 |
| $\times 8$ | $\times 6$ | $\times 4$ |  |

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## Addition \& Subtraction Review

1 Solve the addition problems below.

| 457 |
| ---: |
| $+\quad 142$ |

$$
\begin{array}{r}
387 \\
+\quad 414 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
609 \\
+\quad 734 \\
\hline
\end{array}
$$

$$
1,589
$$

$$
\begin{array}{r}
+3,437 \\
\hline
\end{array}
$$

2 Solve the subtraction problems below.

| 803 | 745 | 985 | 3,581 |
| ---: | ---: | ---: | ---: |
| -547 |  |  |  |
|  | -548 | -237 | $-1,346$ |

3 Fill in the missing numbers to make each equation true.

| a $100=\ldots+30$ | b $100 \times \ldots=1,000$ |
| :---: | :---: |
| C $4=\square \div 9$ | d $\quad=100-56$ |
| e $18 \times 2=$ $\qquad$ $\times 4$ | $90 \div$ $\qquad$ $=5 \times 9$ |

4 Fill in the missing digits.

## example

$\begin{array}{r}536 \\ -248 \\ \hline 288\end{array}$
C

a

$\frac{-1 \square 9}{223}$
d

b


e

$\qquad$

## Order of Operations

The order of operations tells you how to do calculations when there is more than one kind of operation.

| Order of Operations | Example |
| :--- | :---: |
|  | $20-12 \div(3+1)$ |
| 1. Anything inside parentheses | $20-12 \div(\mathbf{3 + 1})=20-12 \div 4$ |
| 2. Multiplication and division from left to right | $20-\mathbf{1 2} \div \mathbf{4}=20-3$ |
| 3. Addition and subtraction from left to right | $\mathbf{2 0} \mathbf{- \mathbf { 3 } = 1 7}$ |

1 Use the order of operations above to complete each equation.

| $\mathbf{a}(9+3) \times(16 \div 8) \div 4$ | $\mathbf{b}(365+35) \div 5+3$ |
| :--- | :--- |
|  |  |
| $\mathbf{c} 36 \div 6+4 \times(27 \div 9)$ | $\mathbf{d}(26-18) \times 5 \div 10+10$ |

2 Insert parentheses to make each equation true.


3 Using at least two operations, write an expression that is the same whether you do the calculations from left to right or using the correct order of operations.

## Using the Standard Multiplication Algorithm

1 Solve these multiplication problems.

| 80 |
| ---: |
| 80 |
| $\times 30$ |$\times$| 90 |
| ---: |
| $\times 30$ |

2 Solve these multiplication problems using the standard algorithm. Use the answers above to help make sure your answers are reasonable.

|  | a $\begin{array}{r} 79 \\ \times 26 \end{array}$ |
| :---: | :---: |
| b $\begin{array}{r} \\ 86 \\ \times 32 \\ \hline\end{array}$ | C $\begin{array}{r} 92 \\ \times \quad 37 \end{array}$ |
| d $\begin{array}{r} \\ 82 \\ \times 43 \\ \hline\end{array}$ | $\begin{array}{r} 98 \\ \times \quad 29 \end{array}$ |

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## Multiplication \& Division Review

1 Complete the following multiplication tables.


2 Complete the following division table.

| $\div$ | 1,200 | 900 | 60 | 210 | 1,500 | 1,800 | 270 | 2,400 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 30 | 40 |  |  |  |  |  |  |  |

3 Solve these multiplication problems using the standard algorithm.

| $\begin{aligned} & 1 \\ & { }_{8}^{2} \end{aligned}$ | 58 | 451 | 256 |
| :---: | :---: | :---: | :---: |
| +36 | $\times 27$ | $\times 32$ | $\times 33$ |
| $\begin{array}{r} 1504 \\ +2,520 \end{array}$ |  |  |  |
| 3,024 |  |  |  |
| 177 | 305 | 573 | 837 |
| $\times 49$ | $\times 64$ | $\times 26$ | $\times 86$ |

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## Thinking About Divisibility

It's easy to tell if a small number like 12 is divisible by another number. With bigger numbers, like 435, it can be harder to tell. Fill in the rules for knowing if a certain number is divisible by 5 or 10 . Then figure out which numbers are divisible by each number.

| Rule | Circle the numbers that are divisible by the number whose rule you just described. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ex a Finish the rule: A number is divisible by 2 if... <br> there is $0,2,4,6$, or 8 in the ones place. | $431 \bigcirc 906$ |  |  |  |  |
| 1 A number is divisible by 3 if the sum of its digits is divisible by 3 . | a     <br>      <br> 117 409 423 6,151 3,213 |  |  |  |  |
| 2a Finish the rule: A number is divisible by 5 if... | b 205 |  |  |  | 7,00 |
| 3 A number is divisible by 6 if the sum of its digits is divisible by 3 and it is even. | a <br> 132 |  | 588 | 2,706 | 3,512 |
| 4 A number is divisible by 9 if the sum of its digits is divisible by 9 . | a |  |  |  |  |
| 5a Finish the rule: A number is divisible by 10 if... | b 208 |  |  |  | 8,430 |

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## Products \& Secret Paths

1 Circle the two numbers whose product is shown. Hint: Use estimation to help.

| Product | Circle the two numbers that multiply to make the product. |  |  |  | Use this space for work if you need to. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ex 1,196 | 12 |  | (52) | 83 | Estimates: $\begin{aligned} & 12 \times 83(800) \\ & 52 \times 83(4000) \end{aligned}$ | $\frac{12 \times 23(200)}{23 \times 52(1000)}$ |
| a 714 | 14 | 22 | 42 | 51 |  |  |
| b 1,008 | 14 | 24 | 42 | 58 |  |  |
| C 2,211 | 21 | 33 | 51 | 67 |  |  |
| d 2,730 | 15 | 42 | 65 | 82 |  |  |

2 Use multiplication and division to find the secret path through each maze. The starting and ending points are marked for you. You can only move one space up, down, over, or diagonally each time. Write four equations to explain the path through the maze.

| ex |  | a | end start |  |  | b |  | start |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| end <br> start | 20-60-3 |  | 4 | 40 | 160 |  | 14 | 540 | 9 |
|  | 1 9 180 |  | 10 | 80 | 2 |  | 7 | 60 | 3 |
|  | 36-4 20 |  | 10 | 100 | 50 |  | 2 | 90 | 180 |
| $\begin{gathered} 36 \div 4=9 \\ 9 \times 20=180 \\ 180 \div 3=60 \\ 60 \div 20=3 \end{gathered}$ |  |  |  |  |  |  |  |  |  |

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## Division Estimate \& Check

Make a multiplication menu for each divisor. Complete the sentence to identify a range of reasonable answers. Then use long division to find the exact answer, including the remainder if there is one.

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## Order of Operations Review

The order of operations tells you how to do calculations when there is more than one kind of operation.

| Order of Operations | Example |
| :--- | :--- |
|  | $20-12 \div(3+1)$ |
| 1. Anything inside parentheses | $20-12 \div(\mathbf{3 + 1})=20-12 \div 4$ |
| 2. Multiplication and division from left to right | $20-\mathbf{1 2} \div \mathbf{4}=\mathbf{2 0}-3$ |
| 3. Addition and subtraction from left to right | $\mathbf{2 0} \mathbf{- \mathbf { 3 } = 1 7}$ |

1 Use the order of operations above to complete each equation. Show all your work.

| $\mathbf{a} \_=463-180 \div(3 \times(2+3))$ | $\mathbf{b}(249-192) \div 3 \times 14=\ldots$ |
| :--- | :--- | :--- |
|  |  |
| $\mathbf{c} \_=36+14 \times(182-164) \div 12$ | $\mathbf{d}(9 \div 3+213)-72 \div 4=\square$ |
|  |  |

2 Insert parentheses to make each equation true. Show all your work.
a $3 \times 9+18+36 \div 9=33$
b $2=140 \div 2+12-4 \times 2$

## Reviewing Three Number Properties

If you are adding or multiplying, you can change the order of the numbers or the way they are grouped to make the calculations easier. The three properties below can make mental math easier.

| Commutative Property | Associative Property | Distributive Property |
| :---: | :---: | :---: |
| Changing the order of two numbers or numerical expressions when you add or multiply does not change the answer. | Changing the way you group three numbers or numerical expressions when you add or multiply does not change the answer. | You can break a number apart, multiply each part separately, and then add the products. You will still get the same answer. |
| $\begin{aligned} & 5+2=2+5 \\ & 5 \times 2=2 \times 5 \end{aligned}$ | $\begin{aligned} (38 \times 4) \times 25 & =38 \times(4 \times 25) \\ & =38 \times 100 \\ & =3,800 \end{aligned}$ | $\begin{aligned} 6 \times 13 & =6 \times(10+3) \\ & =6 \times 10+6 \times 3 \\ & =60+18 \\ & =78 \end{aligned}$ |

1 For each problem below:

- Write it a different way so it is easier to solve in your head.
- Solve it and write the answer.
- Circle C if you switched the order of the numbers.
- Circle A if you grouped the numbers in a different way.
- Circle D if you broke the number apart and multiplied one part at a time.
- You may need to circle more than one property.

| Problem | Rewrite | Answer | Property |
| :--- | :--- | :--- | :--- |
| ex $(70+469)+30$ | $(70+30)+469$ | 569 | C |
| A $)$ | D |  |  |
| a $12 \times 23$ |  |  | C A D |
| b $(50 \times 73) \times 2$ |  |  | C A D |
| c $15+(135+86)$ |  |  | C A D |
| d $35 \times 8$ |  |  | C A D |
| e $25 \times(4 \times 329)$ |  | C A D |  |
| $\mathbf{f}(34 \times 50) \times 20$ |  | C A D |  |

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## Division Review

Make a multiplication menu for each divisor. Complete the sentence to identify a range of reasonable answers. Then use long division to find the exact answer, including the remainder if there is one.

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## Decimal Addition \& Subtraction Review

1 Fill in the missing digit so that each sum is greater than 1 . In some cases, there will be more than one correct answer.

| ex $0.106+0 . \underline{9} 02$ | $\mathbf{a} 0.512+0.4 \_6$ |
| :--- | :--- |
| b $0.920+0 . \_. \_98$ | c $0.386+0.61 \_$ |

2 Complete the following addition problems.

| 3.034 | 2.006 | 3.080 | 24.38 | 7.608 |
| :---: | :---: | :---: | :---: | :---: |
| + 1.886 | + 7.989 | + 14.513 | + 5.9 | + 2.600 |
| 4.920 |  |  |  |  |

3 Complete the following subtraction problems.

| 3.946 | 3.675 | 4.438 | 10.17 | 13.154 |
| :---: | :---: | :---: | :---: | :---: |
| - 8.873 | -0.947 | - 2.210 | -8.99 | -8.083 |
| 1.773 |  |  |  |  |

$9.056-5.27=$ $\qquad$

$$
27.003-26.09=
$$

