



# GRADE 5 SUPPLEMENT

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## Set A3 Number & Operations: Estimating to Multiply & Divide

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### Skills & Concepts

- ★ develop and use strategies to estimate the results of multi-digit multiplication and division and judge the reasonableness of such results

**Bridges in Mathematics Grade 5 Supplement**

**Set A3** Numbers & Operations: Estimating to Multiply & Divide

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*Bridges in Mathematics* is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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# Set A3 ★ Independent Worksheet 1



## INDEPENDENT WORKSHEET

### Using Compatible Numbers to Multiply & Divide

Mathematicians sometimes estimate answers to multiplication and division problems by using *compatible numbers*. Compatible numbers are numbers that work well together.

<p><b>example 1</b> A page in my chapter book has 12 words in each line and 32 lines on the page. <i>About</i> how many words on the whole page? Change 12 and 32 to nearby numbers that are easier to multiply in your head.</p> <p>12 is close to 10  32 is close to 30  <math>10 \times 30 = 300</math>, so the page has about 300 words.</p>	<p><b>example 2</b> Mr. Gomez had 396 crayons left over at the end of the year. He's putting them in bags to send home with the kids. He has 20 students in his class. <i>About</i> how many crayons will each student get? Change 396 to a nearby number that is easier to divide by 20.</p> <p>396 is close to 400.  20 is already a friendly number. You don't always have to change both numbers.  <math>400 \div 20 = 20</math>, so each student will get about 20 crayons.</p>
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**1** Choose a chapter book from your classroom. Turn to a page in the middle of the book. *About* how many words do you think there are on the page? To find out, count the number of words in one line. Next, count the number of lines on the page. Record the information:

Words in one line \_\_\_\_\_

Lines on the page \_\_\_\_\_

**2** Use compatible numbers to estimate the number of words on the page. Show your work.

(Continued on back.)

**Independent Worksheet 1** Using Compatible Numbers to Multiply & Divide (cont.)

**3** All the fourth and fifth graders at King School are going on a field trip with their teachers and some parent helpers. In all, there will be 197 people. The bus company plans to use 4 buses. Estimate how many people will ride in each bus. Use compatible numbers to help you. Show your work.

**4** Use compatible numbers to estimate the answer to each problem below. To use this estimation strategy, change the actual numbers to nearby numbers that are compatible. The first two are done for you.

<p><b>multiplication example</b> <math>21 \times 19</math></p> <p>21 is close to <u>20</u>.</p> <p>19 is close to <u>20</u>.</p> <p><u>20</u> <math>\times</math> <u>20</u> = <u>400</u>,</p> <p>so the answer is about <u>400</u>.</p>	<p><b>division example</b> <math>249 \div 24</math></p> <p>249 is close to <u>250</u>.</p> <p>24 is close to <u>25</u>.</p> <p><u>250</u> <math>\div</math> <u>25</u> = <u>10</u>,</p> <p>so the answer is about <u>10</u>.</p>
<p><b>a</b> <math>32 \times 29</math></p> <p>32 is close to _____.</p> <p>29 is close to _____.</p> <p>_____ <math>\times</math> _____ = _____,</p> <p>so the answer is about _____.</p>	<p><b>b</b> <math>153 \div 9</math></p> <p>153 is close to _____.</p> <p>9 is close to _____.</p> <p>_____ <math>\div</math> _____ = _____,</p> <p>so the answer is about _____.</p>
<p><b>c</b> <math>49 \times 19</math></p> <p>49 is close to _____.</p> <p>19 is close to _____.</p> <p>_____ <math>\times</math> _____ = _____,</p> <p>so the answer is about _____.</p>	<p><b>d</b> <math>119 \div 9</math></p> <p>119 is close to _____.</p> <p>9 is close to _____.</p> <p>_____ <math>\div</math> _____ = _____,</p> <p>so the answer is about _____.</p>

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## Set A3 ★ Independent Worksheet 2



### INDEPENDENT WORKSHEET

#### More Multiplication & Division with Compatible Numbers

1 Which 2 numbers in the box could you multiply to come closest to 600? Circle them. Show your thinking.

39	47	5	62	87	11	5	26
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2 Estimate the answers to the following multiplication problems. Use compatible numbers to help. Show your work. The first one is done for you.

<p><b>example</b> <math>31 \times 28</math></p> <p>31 is close to <u>30</u>.</p> <p>28 is close to <u>30</u>.</p> <p><u>30</u> <math>\times</math> <u>30</u> = <u>900</u>,</p> <p>so the answer is about <u>900</u>.</p>	<p><b>a</b> <math>39 \times 22</math></p>
<p><b>b</b> <math>84 \times 11</math></p>	<p><b>c</b> <math>48 \times 18</math></p>

(Continued on back.)

**Independent Worksheet 2** More Multiplication & Division with Compatible Numbers (cont.)

**3** Estimate the answers to the following division problems. Use compatible numbers to help you. Show your work.

**a** *About* how much does each can of sugar-free soda cost if a case of 24 costs \$5.99?

**b** 9 scouts want to split a bag of 262 peanuts equally. *About* how many peanuts will each of the scouts get?

**c** The scouts in Lincoln City collected 594 cans of food. Now they're going to put the cans into bags to take to the Food Bank. If they put 21 cans in each bag, *about* how many bags of food can they make?

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# Set A3 ★ Independent Worksheet 3



## INDEPENDENT WORKSHEET

### Reasonable Estimates in Multiplication & Division

1 Fill in the bubble in front of the answer that gives a reasonable estimate for each problem. (Hint: Try using compatible numbers to help.) To the right of the problem, use words, numbers and/or pictures to explain why you think it is a reasonable estimate. The first one is done for you.

<p><b>example</b></p> $\begin{array}{r} 19 \\ \times 22 \\ \hline \end{array}$ <p> <input type="radio"/> 229    <i>19 is close to 20. 22 is close to 20.</i>  <input type="radio"/> 290    <i>20 x 20 = 400, so 400 is the</i>  <input checked="" type="radio"/> 400    <i>best estimate.</i>  <input type="radio"/> 500         </p>	<p><b>a</b></p> $\begin{array}{r} 28 \\ \times 21 \\ \hline \end{array}$ <p> <input type="radio"/> 400  <input type="radio"/> 500  <input type="radio"/> 600  <input type="radio"/> 700         </p>
<p><b>b</b></p> $\begin{array}{r} 26 \\ \times 9 \\ \hline \end{array}$ <p> <input type="radio"/> 180  <input type="radio"/> 260  <input type="radio"/> 300  <input type="radio"/> 540         </p>	<p><b>c</b> <math>206 \div 19 =</math></p> <p> <input type="radio"/> 10  <input type="radio"/> 16  <input type="radio"/> 20  <input type="radio"/> 26         </p>
<p><b>d</b> <math>598 \div 18 =</math></p> <p> <input type="radio"/> 18  <input type="radio"/> 21  <input type="radio"/> 25  <input type="radio"/> 30         </p>	<p><b>e</b> <math>994 \div 19 =</math></p> <p> <input type="radio"/> 40  <input type="radio"/> 45  <input type="radio"/> 50  <input type="radio"/> 60         </p>

(Continued on back.)

**Independent Worksheet 3** Reasonable Estimates in Multiplication & Division (cont.)

**2** Brianna has \$9.00. Baseball trading cards cost \$0.49 each. She estimates that she will be able to buy about 27 cards with her money. Is this a reasonable estimate? Use words, numbers and/or pictures to explain your answer.