Important Concepts...

Preview Review

Mathematics Grade 6

W1 - Lesson 1: Basic Facts, Basic Operations, and Integers
Important Concepts of Grade 6 Mathematics

W1 - Lesson 1 ............................................................. Basic Facts, Basic Operations, and Integers
W1 - Lesson 2 .......................................................... Place Value, Whole Numbers, Decimals, and Common Fractions
W1 - Lesson 3 .......................................................... Improper Fractions and Mixed Numbers
W1 - Lesson 4 .......................................................... Ratios and Percents
W1 - Lesson 5 .......................................................... Number Operations with Decimals
W1 - Quiz
W2 - Lesson 1 .......................................................... Factors, Multiples, and Prime Factorizations
W2 - Lesson 2 .......................................................... Metric Measurement
W2 - Lesson 3 .......................................................... Perimeter and Area
W2 - Lesson 4 .......................................................... Surface Area and Volume
W2 - Lesson 5 .......................................................... Working with Angles and Drawing Objects and Shapes
W2 - Quiz
W3 - Lesson 1 .......................................................... Transformations
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W3 - Lesson 3 .......................................................... Collecting and Analyzing Data
W3 - Lesson 4 .......................................................... Number Patterns, Magic Squares, and Problem Solving
W3 - Lesson 5 .......................................................... Probability and Outcomes
W3 - Quiz

Materials Required: A textbook is not needed. This is a stand-alone course.

Mathematics Grade 6
Version 5
Preview/Review W1 - Lesson 1

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Preview/Review Concepts for Grade Six Mathematics

W1 - Lesson 1: Basic Facts, Basic Operations, and Integers
OBJECTIVES

By the end of this lesson, you should

• know basic facts of addition, subtraction, multiplication, and division

• perform basic operations of addition, subtraction, multiplication, and division

• understand positive and negative integers

GLOSSARY

addition: the process of combining amounts to have more

integer: a positive or negative number or a zero

multiplication: the process of increasing an amount a number of times

subtraction: the process of removing some amount to have less
W1 - Lesson 1: Basic Facts, Basic Operations, and Integers

Welcome to the Preview/Review of Grade Six Mathematics. This course contains 15 lessons, each 90 minutes in length. No textbook is required because all instructions and worksheets are provided.

Welcome to W1 - Lesson 1! This lesson tests your knowledge of the basic facts and your competency in basic mathematics operations. Four two-minute timed quizzes (addition, subtraction, multiplication, and division) and two short exams are included. The first exam is on addition and subtraction and the second exam is on multiplication and division. Students are not allowed to use calculators because the purpose of the tests is to evaluate their present skill levels.

At the end of the lesson, you are asked to evaluate your work on that lesson. Please be specific and honest in your evaluation. You are asked three questions. Notice the sample answers. Your answers at the end of each lesson show you know what you know, and they help your teacher help you!

Self-Evaluation

Ask yourself some important questions. Write your answers in sentences for your teacher.

1. In this lesson, what part of your work was excellent?
   Example: I know my times tables to 6 very well. I understand integers and basic operations.

2. In this lesson, what part of your work needs improvement?
   Example: I know my times tables to 6 very well, but I have trouble with 7, 8, and 9 times tables.

3. If you want help for some of the work in this lesson, ask your teacher in this space.
   Example: I need help with long division. I get too many wrong.
Complete as many operations as possible in the time allotted for each operation.

Basic Facts: Addition........................................................................................................ Two Minutes

6 + 3 = ____    4 + 9 = ____    6 + 5 = ____    7 + 2 = ____    4 + 7 = ____
1 + 8 = ____    4 + 5 = ____    9 + 7 = ____    8 + 8 = ____    5 + 7 = ____
9 + 6 = ____    7 + 8 = ____    8 + 2 = ____    5 + 9 = ____    4 + 8 = ____
3 + 9 = ____    6 + 6 = ____    8 + 5 = ____    7 + 6 = ____    8 + 9 = ____
7 + 7 = ____    4 + 6 = ____    9 + 9 = ____    6 + 8 = ____    3 + 7 = ____

Number of questions completed: _____  Number of questions correct: _____

Basic Facts: Subtraction.............................................................................................. Two Minutes

10 – 4 = ____    8 – 3 = ____    15 – 6 = ____    9 – 7 = ____    12 – 5 = ____
7 – 3 = ____    11 – 9 = ____    6 – 2 = ____    16 – 7 = ____    13 – 8 = ____
15 – 2 = ____    14 – 6 = ____    12 – 8 = ____    13 – 6 = ____    17 – 9 = ____
8 – 1 = ____    10 – 7 = ____    5 – 0 = ____    12 – 9 = ____    11 – 3 = ____
18 – 9 = ____    9 – 4 = ____    16 – 8 = ____    13 – 4 = ____    14 – 5 = ____

Number of questions completed: _____  Number of questions correct: _____
Basic Facts: Multiplication  ............................................................. Two Minutes

\[ 9 \times 2 = \_\_\_ \quad 4 \times 4 = \_\_\_ \quad 2 \times 6 = \_\_\_ \quad 8 \times 8 = \_\_\_ \quad 0 \times 4 = \_\_\_ \]

\[ 6 \times 3 = \_\_\_ \quad 8 \times 9 = \_\_\_ \quad 8 \times 7 = \_\_\_ \quad 6 \times 9 = \_\_\_ \quad 6 \times 6 = \_\_\_ \]

\[ 9 \times 0 = \_\_\_ \quad 9 \times 5 = \_\_\_ \quad 8 \times 6 = \_\_\_ \quad 7 \times 7 = \_\_\_ \quad 8 \times 4 = \_\_\_ \]

\[ 9 \times 7 = \_\_\_ \quad 5 \times 5 = \_\_\_ \quad 7 \times 6 = \_\_\_ \quad 7 \times 3 = \_\_\_ \quad 4 \times 9 = \_\_\_ \]

\[ 4 \times 8 = \_\_\_ \quad 2 \times 8 = \_\_\_ \quad 9 \times 3 = \_\_\_ \quad 9 \times 9 = \_\_\_ \quad 3 \times 8 = \_\_\_ \]

Number of questions completed: \_\_\_ Number of questions correct: \_\_\_

Basic Facts: Division  ............................................................. Two Minutes

\[ 4 + 1 = \_\_\_ \quad 28 \div 4 = \_\_\_ \quad 36 \div 6 = \_\_\_ \quad 24 \div 8 = \_\_\_ \quad 10 \div 2 = \_\_\_ \]

\[ 14 \div 2 = \_\_\_ \quad 56 \div 7 = \_\_\_ \quad 40 \div 8 = \_\_\_ \quad 72 \div 9 = \_\_\_ \quad 54 \div 6 = \_\_\_ \]

\[ 36 \div 9 = \_\_\_ \quad 35 \div 5 = \_\_\_ \quad 18 \div 3 = \_\_\_ \quad 56 \div 8 = \_\_\_ \quad 40 \div 5 = \_\_\_ \]

\[ 64 \div 8 = \_\_\_ \quad 42 \div 7 = \_\_\_ \quad 27 \div 3 = \_\_\_ \quad 63 \div 7 = \_\_\_ \quad 12 \div 2 = \_\_\_ \]

\[ 16 \div 4 = \_\_\_ \quad 81 \div 9 = \_\_\_ \quad 30 \div 5 = \_\_\_ \quad 48 \div 6 = \_\_\_ \quad 32 \div 8 = \_\_\_ \]

Number of questions completed: \_\_\_ Number of questions correct: \_\_\_
Test 1: Addition and Subtraction Exam...................................... Seven Minutes

Students may not use calculators. Complete as many as possible in the time allowed. Check your work if you have time.

1. \[ \begin{align*} &26 \quad 35 \quad 48 \quad + \quad 73 \\ &\underline{+73} \end{align*} \]

2. \[ \begin{align*} &224 \quad 537 \quad 810 \quad + \quad 645 \\ &\underline{+645} \end{align*} \]

3. \[ \begin{align*} &7869 \quad + \quad 2463 \\ &\underline{+2463} \end{align*} \]

4. \[ \begin{align*} &9573 \quad - \quad 4668 \\ &\underline{-4668} \end{align*} \]

5. \[ \begin{align*} &82630 \quad - \quad 53574 \\ &\underline{-53574} \end{align*} \]

6. \[ \begin{align*} &760 \quad 939 \quad 425 \quad + \quad 778 \\ &\underline{+778} \end{align*} \]

7. \[ \begin{align*} &4081 \quad 5253 \quad 6798 \quad + \quad 3024 \\ &\underline{+3024} \end{align*} \]

8. \[ \begin{align*} &25895 \quad 94325 \quad 65466 \quad + \quad 45321 \\ &\underline{+45321} \end{align*} \]

9. \[ \begin{align*} &8003 \quad \underline{\quad 2195} \\ &\underline{-2195} \end{align*} \]

10. \[ \begin{align*} &70802 \quad \underline{\quad 39814} \\ &\underline{-39814} \end{align*} \]

Number of questions completed: _____ Number of questions correct: _____
Test 2: Multiplication and Division Exam ................................. Ten Minutes

Students may not use calculators. Complete as many as possible in the time allowed. Check your work if you have time.

1. \[ \frac{54}{3} \times 3 \]
2. \[ \frac{807}{4} \times 4 \]
3. \[ \frac{468}{3} \div 3 \]
4. \[ 11 \div 9438 \]
5. \[ 7 \div 6048 \]

6. \[ \frac{875}{64} \times 64 \]
7. \[ \frac{369}{254} \times 254 \]
8. \[ \frac{96}{25} \times 25 \]
9. \[ 41 \div 96391 \]
10. \[ 25 \div 9475 \]

Number of questions completed: _____ Number of questions correct: _____
Integers

An **integer** is a positive or negative whole number or a zero.

- A positive integer is written with the symbol +. 
  +7 is read as “positive seven”.

- A negative integer is written with the symbol –. 
  −4 is read as “negative four”.

We use integers everyday. Notice that the bolded key words determine if the numbers are positive or negative.

**Some examples:** (answer in brackets)

a. The army tank **advanced** 25 metres. (+25)

b. The stairway went **up** 11 floors. (+11)

c. The temperature **fell** 8 degrees. (−8)

d. The Oilers are **leading** the Flames by 2 goals. (+2)

e. The Canadian skier was 35 metres **behind** the leader. (−35)

Questions

1. Write the following integers in words:

   **Example**: + 49: positive forty-nine

   a. −34: .................................................................

   b. +18: .................................................................

   c. +205: .................................................................

   d. −799: .................................................................

   e. +802: .................................................................
2. Write these integers in numerals and symbols.

**Example:** Negative three hundred twenty: \(-320\)

a. positive six: __________________

b. negative fifty-four: ________________

c. negative two hundred eighteen: ________________

d. positive four thousand three hundred twenty-seven: ____________

e. negative six thousand and two: ________________

3. Name the next three integers.

**Example:** below +56: +55, +54, +53 (Think: Finding the numbers below is like counting backwards.)

a. above +4: __________________

b. above –8: __________________

c. below +96: __________________

d. above –123: __________________

e. greater than +62: __________________

h. greater than –209: __________________
4. Write the next 3 integers in each series:

**Example:** +2, +4, +6: +8, +10, +12 (Think: Plus two, four, and six are followed by plus eight, ten, and twelve.)

a. 0, +3, +6, 

b. –7, –11, –15, 

c. –20, –15, –10, 

d. +100, +125, +150, 

e. +512, +256, +128, 

f. –888, –789, –690, 

5. Arrange the integers in order from least to greatest:

**Example:** +56, –23, +129, –444, 0: –444, –23, 0, +56, +129

a. –231, –456, –1 006, –95, –198

b. +8, +6, 0, –11, +26

c. +98, +765, –56, –876, +22

d. –77, –88, –34, 0, +51

e. +987, +5, –456, –87, –1 224
6. Complete the following integer sentences:

   **Example:** \((-8) + (+12) = +4\)

   a. \((-4) + (-9) = \) \\
   b. \((+7) + (+18) = \) \\
   c. \((-13) + (+11) = \) \\
   d. \((+34) + (-15) = \) \\
   e. \((-49) + (+27) + (+24) = \) \\
   f. \((+87) + (-41) + (-35) = \)

7. Arrange in order from largest to smallest:

   **Example:** \(+444, +555, -23, -345, +200: +555, +444, +200, -23, -345\)

   a. \(+700, +860, +1335, +24, +444\)

   b. \(-2, -5, 0, -20, +5\)

   c. \(-17, +22, -19, +20, +9\)

   d. \(+123, +213, +312, +137, +270\)

   e. \(-1007, -1024, -1042, -1070, 0\)
8. Find the integers on a number line.

Following is an example of a number line:

![Number Line Diagram]

a. What is the value of D? ________
b. What is the value of E? ________
c. What is the value of F? ________
d. What is the value of G? ________

9. Draw a number line for each set of integers.

a. –7 to +3 (count by 1s)

b. –25 to +10 (count by 5s)

c. +120 to +260 (count by 20s)
Homework Assignment

Following are the scores of a charity golf match played by Tiger Woods, Mike Weir, Wayne Gretzky, and Premier Ralph Klein.

<table>
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<tr>
<th>Hole Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
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<td>5</td>
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<td>4</td>
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<td>4</td>
<td></td>
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<tr>
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<td>4</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ralph Klein</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Wayne Gretzky</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1. Calculate each player’s final score.
   a. Tiger ________
   b. Mike ________
   c. Ralph ________
   d. Wayne ________

2. Write each player’s total score as an integer showing whether he is above or below par.
   a. Tiger ________
   b. Mike ________
   c. Ralph ________
   d. Wayne ________
Self-Evaluation

Ask yourself some important questions. Write your answers in sentences for your teacher.

1. In this lesson, what part of your work was excellent?

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

2. In this lesson, what part of your work needs improvement?

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

3. If you want help for some of the work in this lesson, ask your teacher in this space.

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________