

15. +3,7014

14. +1.82

13. +55

12. -19

11. -25

10. -45

9. -13

8. -31

7. -59

6. +4

5. +319

4. -530

3. -79

2. +571

1. -8

BASIC MATH

The Complete Course
Lesson Sixteen

Adding & Subtracting Integers

KA8416

Teaching Guide & Worksheet

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TMW MEDIA GROUP

2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax (310) 574-0886

Email: info@tmwmedia.com

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HOW TO USE THE VIDEO AND TEACHING GUIDE

1. The "STOP TO THINK" signal means pause to think.
2. The "STOP TO WORK" signal means work the problem(s).
3. Rewind the tape and watch the lesson again if the concept is not clear.
4. Use "Learning Strategies" section of the Teachers Guide as memory aids and topics for classroom discussion.
5. Students should complete the exercises on the worksheet to confirm their understanding of this lesson.

Instructors may duplicate the worksheets as needed

LEARNING STRATEGIES

THE NEGATIVE NUMBER

- A. The creation of negative numbers: same distance, opposite direction
- +4 and -4 are each four units from zero
 - +4 and -4 are opposite directions from zero
- B. The uses of signed numbers
- Profit/loss
 - Gain/loss in football
 - +/- in hockey
 - Up/down in physics
 - The stock market
 - Temperatures
- C. The difference between counting numbers and integers
- Three is a counting number
 - +3 is an integer
 - We interchange them
- D. Opposites are additive inverses
- 4 and +4 are opposites
 - $-4 + +4 = 0$
- E. Comparing integers
- "Greater than" means to the right
 - "Less than" means to the left
 - A temperature scale is a concrete example

ADDING INTEGERS

- A. Using movements north and south to develop the rules of addition
- $8N + 7N = 15N$
 - $4S + 6S = 10S$
 - $6N + 9S = 3S$
 - $11N + 8S = 3N$
- B. To add numbers having the same sign
- Keep the sign
 - Add the numbers
- C. To add numbers having opposite signs
- Use the sign of the larger number
 - Find the difference between the numbers
- D. Applying the rules for adding signed numbers
- $-42 + +15$
 - $-37 + -17$

SUBTRACTING INTEGERS

- A. Using the graphical method of subtraction (from Lesson 1), develop a rule for subtracting integers
- B. The rule for subtraction of signed numbers
- Change the sign of the second number
 - Add the two integers using the appropriate addition rule
- C. Applying the rule to problems
- $-4 - +7 = -4 + -7$
 - $-4 + -7 = -11$
 - $-10 - -6 = -10 + +6$
 - $-10 + +6 = -4$

THE ORDER OF OPERATIONS FOR INTEGERS

- A. Change all the subtractions to additions by changing the sign of the second number
- $-31 - +47 + +18 + -22 - -61$
 - $-31 + -47 + +18 + -22 + +61$

- B. Add all the positive numbers to get the positive sum
- $+18 + +61$
 - The sum is +79
- C. Add all the negative numbers to get the negative sum
- $-31 + -47 + -22$
 - The sum is -100
- D. Add the positive sum and the negative sum to get the answer
- $+79 + -100$
 - The sum is -21
- E. Applying this method to problems

WORKSHEET STRATEGIES

Solve the following:

- $-15 + -21 + +28 = \underline{\hspace{2cm}}$
- $-725 + +673 + +1001 + -378 = \underline{\hspace{2cm}}$
- $-357 - -278 = \underline{\hspace{2cm}}$
- $-456 - +372 - -298 = \underline{\hspace{2cm}}$
- $+312 + -172 - +104 - -276 + +7 = \underline{\hspace{2cm}}$
- $-12 + \underline{\hspace{2cm}} = -8$
- $+47 + \underline{\hspace{2cm}} = -12$
- $-24 - \underline{\hspace{2cm}} = +7$
- $-37 - \underline{\hspace{2cm}} = -24$
- $\underline{\hspace{2cm}} - -14 = -31$
- $\underline{\hspace{2cm}} - +17 = -42$
- $\underline{\hspace{2cm}} - -36 = +17$
- $\underline{\hspace{2cm}} - +45 = +10$
- $-4.28 + +6.1 = \underline{\hspace{2cm}}$
- $-7.37 - -11.0714 = \underline{\hspace{2cm}}$