DMT INSTITUTE

Developing Mathematical Thinking Institute (DMTI)

Professional Development

Curricular Resources

Assessment

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Integers and Rational Numbers

ADDITION

DMTI Varied Practice Worksheets

This PowerPoint or PDF displays the worksheets that have varied situations (context, visual, equations, and other mathematical models) for children to work on. By completing these worksheets, children increase their foundational skills in the topic, which will help them with these standards and future mathematical topics.

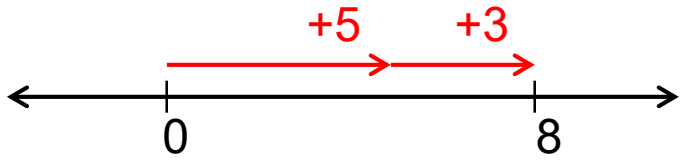
1. If using a journal, have children present the worksheet and complete all the problems.

2. Or print the ‘Varied Practice Worksheet Slides’ for them to work on. Then, you can return to the PowerPoint or PDF to look at the keys to check their work.

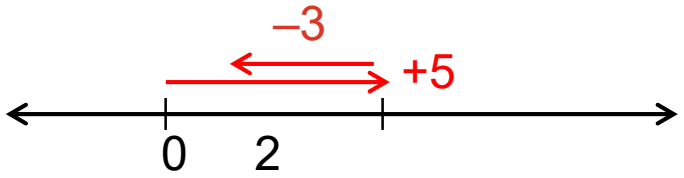
Integers and Rational Numbers: Addition

One way to think of addition is accumulating amounts.

5 + 3 is, “I have the amount 5 and the amount 3 or 8 all together.”

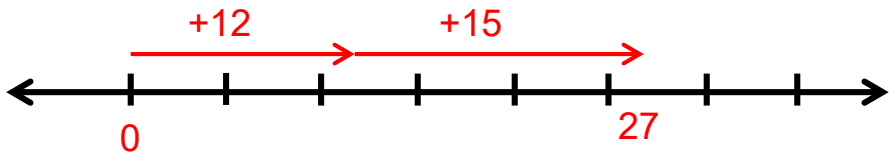
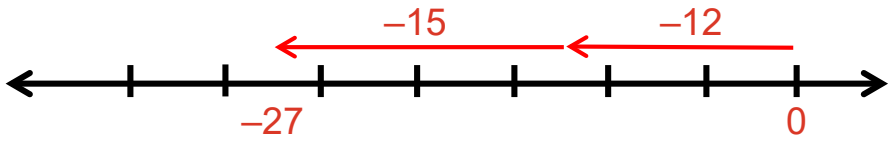
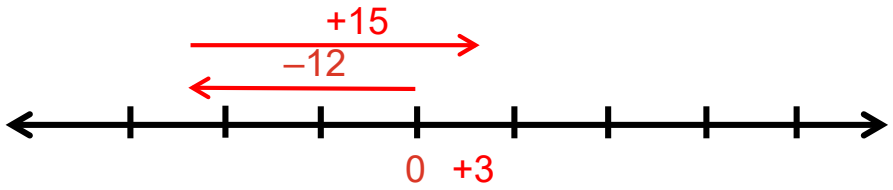
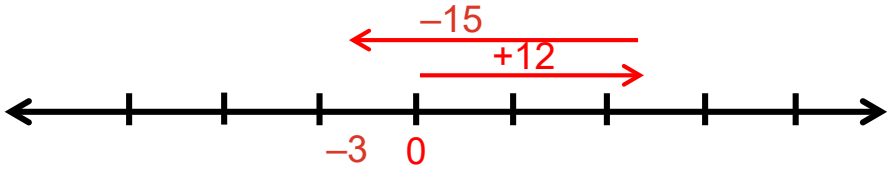


5 + –3, “ I have the amount 5 and –3 or 2 all together.”



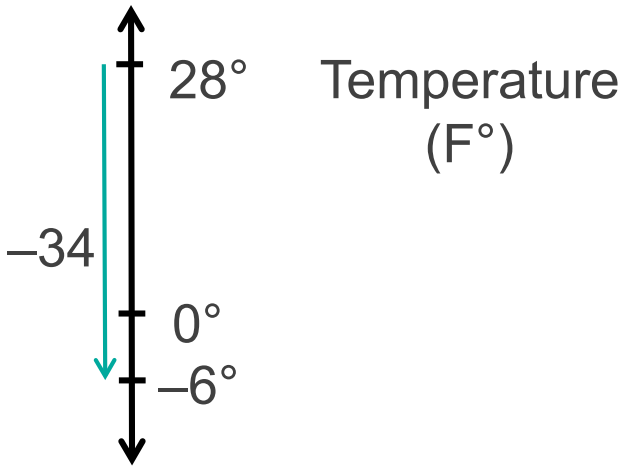
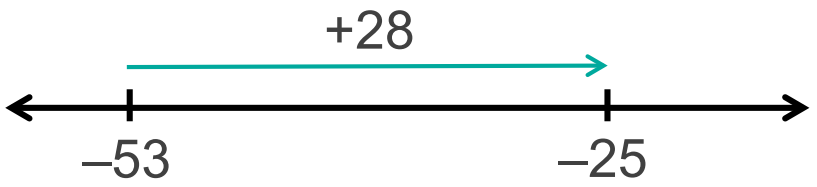
Integers and Rational Numbers: Addition

We can use an open number line representation of the equation to solve and help us generate rules for adding integers.

Equation	Number Line	Rule
(a) 12 + 15 = a		Both numbers are positive. Add them and keep the positive sign.
(b) –12 + –15 = b		Both numbers are negative. Add them and keep the negative sign.
(c) –12 + 15 = c		The two numbers have different signs: one is positive and one is negative. Subtract the numbers and keep the sign of the larger number (or the one farthest from zero).
(d) 12 + –15 = d		

Integers and Rational Numbers: Addition

We can also use contexts for adding integers. Here are two examples.

Context	Addition Equation	Number line
The temperature was 28° F. It dropped 34 degrees. What is the temperature now?	28 + (–34) = –6	
Lucy borrowed $53. She payed back $28. How much money does she have now?	–53 + 28 = –25	

Grade 6-8 Integers and Rational Numbers: Addition

Materials Needed

Printed copies of the Integer Addition worksheets

Instructions

Worksheet 1.1

Each row should include an equation, number line, and rule that match. Use the provided one to generate the other two.

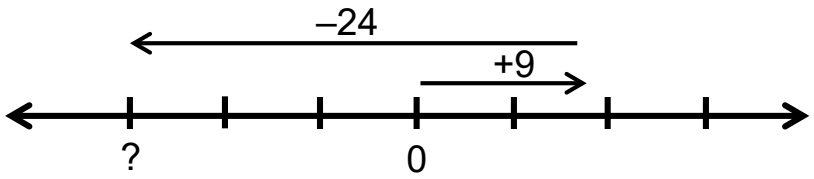
Worksheet 2.1 & 2.2

Each row should include an equation, context and number line that match. Use the provided one to generate the other two.

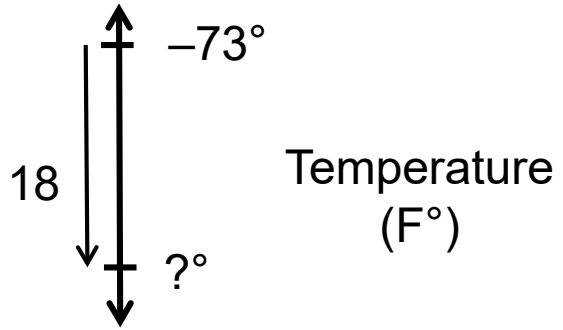
Worksheet 3.1

Determine if each statement is never, sometimes or always true. Provide an example equation(s) to show how you know.

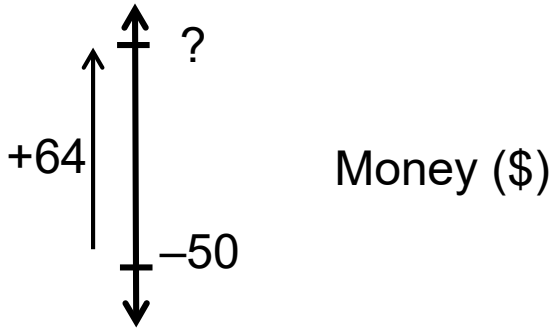
Worksheet 1.1 – Integers and Rational Numbers: Addition

Equation	Number line	Rule
16 + 15 = ?		
		
		Subtract the smaller number from the larger. (–17, +6). The answer is a negative number.
-6 + –9 = ?		

Worksheet 2.1 – Integers and Rational Numbers: Addition

Equation	Context	Number line
		
16 + –5 = d (dollars)		
	Bill earned $85 and then earned $12. How much money does Bill have now?	

Worksheet 2.2 – Integers and Rational Numbers: Addition

Equation	Context	Number line
		
25 + –28 = d (dollars)		
	It was –52° in the Arctic. It rose 19°. What is the temperature now in the Arctic?	

Worksheet 3.1 – Integers and Rational Numbers: Addition

State whether the following are never, sometimes, or always true. Provide an example.

	Never	Sometimes	Always	Example
(a) When you add two integers the answer is always positive.				
(b) When you add two negative numbers, the sum is always negative.				
(c) When you add a positive and a negative, the sum is zero.				
(d) When you add a large positive integer with a small negative integer, the sum is always positive.				
(e) When you add a small positive number and a large negative number, the answer is positive.				

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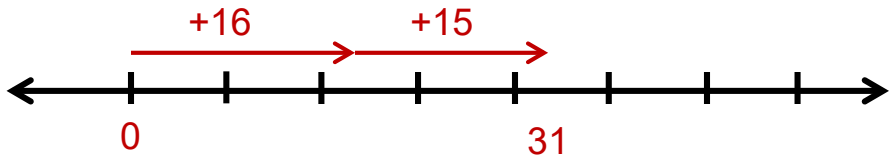
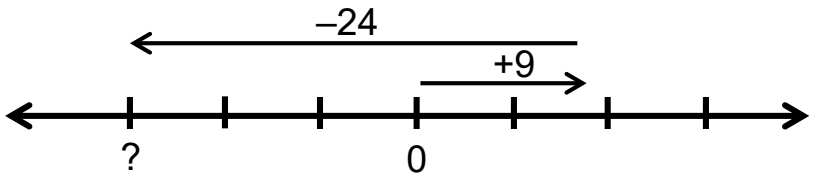
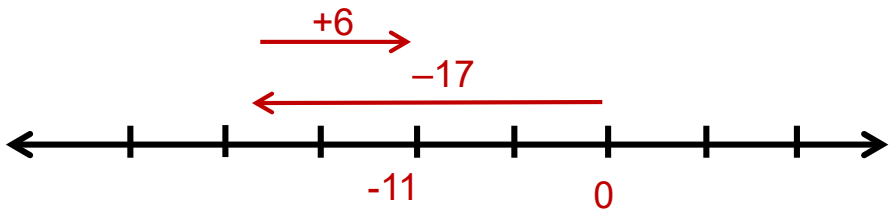
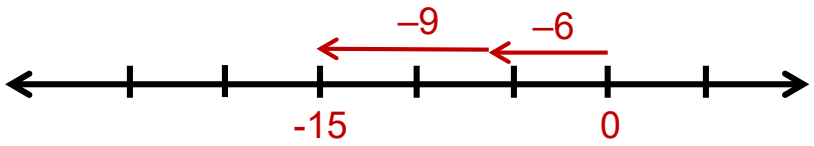
"The Developing Mathematical Thinking Institute (DMTI) is dedicated to enhancing students' learning of mathematics by supporting educators in the implementation of research-based instructional strategies through high-quality professional development, curricular resources and assessments."

For more information contact
Dr. Brendefur at **jbrendefur@dmtinstitute.com**

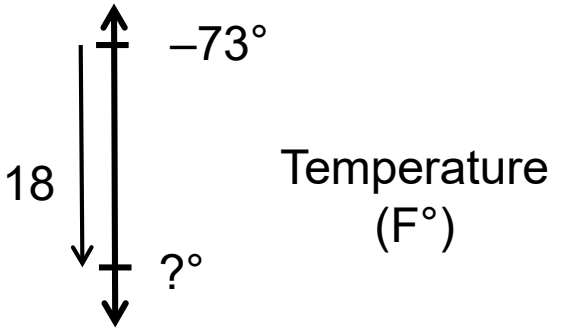
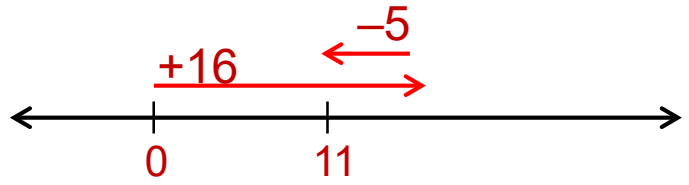
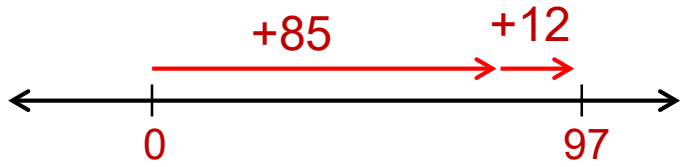
Worksheet 1.1 – Integers and Rational Numbers: Addition

KEY

Equation	Number line	Rule
16 + 15 = ?		Add both numbers (+16, +15). The answer is positive.
9 + -24 = -15		Subtract the smaller number from the larger. (9, -24). The answer is a negative number.
-17 + 6 = -11		Subtract the smaller number from the larger. (–17, +6). The answer is a negative number.
-6 + –9 = ?		Add both negative numbers (-6, -9). The answer is negative

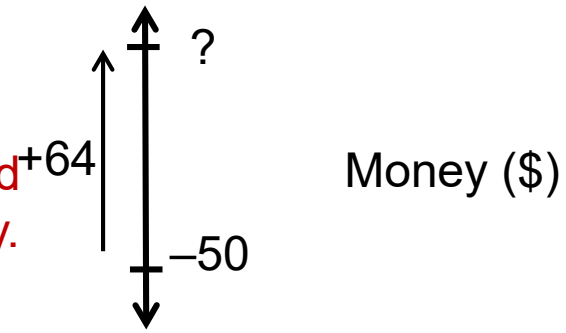
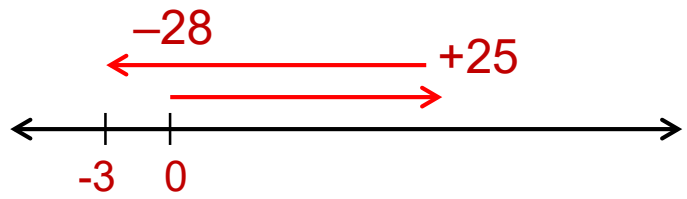
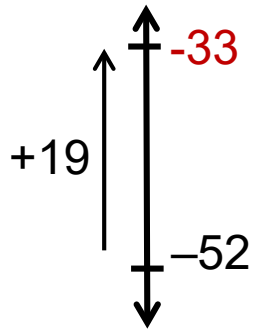
Worksheet 2.1 – Integers and Rational Numbers: Addition

KEY

Equation	Context	Number line
-71 + -18 = -91	It was 71 degrees below zero and fell another 18 degrees. What is the temperature now? Example answers are provided but student solutions may vary.	
16 + –5 = d (dollars)	I had $16, and spent $5 on a movie ticket. How much money do I have now?	
85 + 12 = 97	Bill earned $85 and then earned $12. How much money does Bill have now?	

Worksheet 2.2 – Integers and Rational Numbers: Addition

KEY

Equation	Context	Number line
-50 + 64 = 14	I was $50 in debt, but earned $64 mowing lawns this week. How much money do I have now? Example answers are provided but student solutions may vary.	
25 + –28 = d (dollars)	I made $25 doing chores, but owe my brother $28. How much money do I have now?	
-52 + 19 = -33	It was –52° in the Arctic. It rose 19°. What is the temperature now in the Arctic?	

Worksheet 3.1 – Integers and Rational Numbers: Addition

KEY

State whether the following are never, sometimes, or always true. Provide an example.

	Never	Sometimes	Always	Example Example answers are provided but student examples will vary.
(a) When you add two integers the answer is always positive.		✖		Yes: -3 + 8 = 5 No: 3 + -8 = -5
(b) When you add two negative numbers, the sum is always negative.			✖	-3 + -8 = -11
(c) When you add a positive and a negative, the sum is zero.		✖		Yes: -3 + 3 = 0 No: 3 + -8 = -5
(d) When you add a large positive integer with a small negative integer, the sum is always positive.			✖	10 + -2 = 8
(e) When you add a small positive number and a large negative number, the answer is positive.	✖			3 + -8 = -5