

NAME _____ DATE _____

2-1

Integers and the Number Line (Pages 72–77)

When you draw or plot points for the **whole numbers** $\{0, 1, 2, 3, \dots\}$ and their opposites, **negative numbers**, on a **number line**, this is a **graph** of the **integers**: $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$. The number that corresponds to a point on a number line is called the **coordinate** of that point.

Adding Integers	To add integers on a number line, start at 0 (the origin) and draw an arrow to represent the first addend. Draw the arrow to the left for a negative number and to the right for a positive number. The arrow is the same number of units long as the number in the addend. From this point, draw another arrow in the same way (left for negative, right for positive) that has the number of units in the second addend. The number where the second arrow stops is the sum of the addends.
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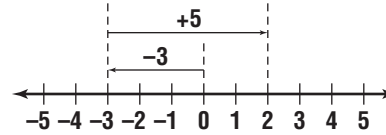
EXAMPLES

A Name the set of numbers graphed.



The graph shows the set: $\{-4, -3, 0, 1, 3\}$.

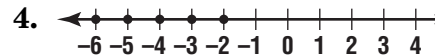
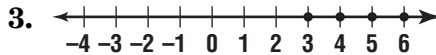
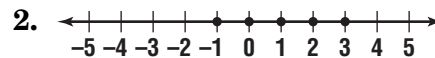
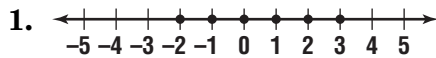
B Find the sum of -3 and 5 .



So $-3 + 5 = 2$.

PRACTICE

Name the set of numbers graphed.



Graph each set of numbers on a number line.

- | | |
|--|---------------------------------------|
| 5. {integers from -2 to 6 , inclusive} | 6. $\{-4, -3, -2, -1\}$ |
| 7. {integers less than 1 but greater than -4 } | 8. {integers greater than 2 } |
| 9. {integers less than or equal to 3 } | 10. {integers less than $-4 + (-1)$ } |

Find each sum. Use a number line if necessary.

- | | | | |
|------------------|----------------|-----------------|----------------|
| 11. $-6 + (-8)$ | 12. $3 + (-7)$ | 13. $6 + 9$ | 14. $-12 + 11$ |
| 15. $-15 + (-3)$ | 16. $-6 + 13$ | 17. $20 + (-7)$ | 18. $-14 + 8$ |

19. **Algebra** Write 3 different equations using integers that have a sum of -3 .



20. **Standardized Test Practice** The temperature rose 20°C from -4°C one day in April. What was the new temperature?

- A -24°C B -16°C C 24°C D 16°C

Answers: 1. $\{3, 2, 1, 0, -1, -2\}$ 2. $\{-1, 0, 1, 2, 3\}$ 3. $\{3, 4, 5, 6, \dots\}$ 4. $\{-2, -3, -4, -5, -6, \dots\}$ 5–10. See Answer Key.
19. Sample answers: $5 + (-8) = -3$; $-2 + (-1) = -3$; $-4 + 1 = -3$ 20. D

