

Integers

Review

$$-4 \cdot 3 = -12$$

$$-12 \div -4 = +3$$

$$-6 + -3 = -9$$

$$-6 - +3 = -9$$

$$-4 - (-5) = +1$$

$$-3 \cdot (-2) = +6$$

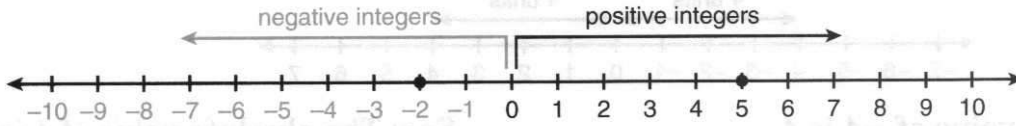
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Integers

Negative and positive whole numbers are called **integers**.

Integers are often shown on a number line with zero as a starting point.



The greater of two integers is always the one farther to the right on a number line.

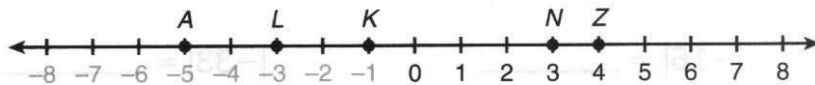
Say: -2 is less than 5 .

Write: $-2 < 5$

Say: 5 is greater than -2 .

Write: $5 > -2$

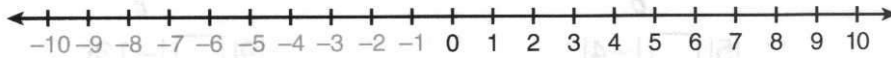
Use integers to name each point on a number line.



1. N _____ L _____ Z _____ K _____ A _____

Graph each point on the number line below.

2. $B, -7$ $F, 1$ $M, 4$ $P, -4$ $S, 5$



Write $<$ or $>$ in each .

- | | | | |
|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| a | b | c | d |
| 3. -1 <input type="checkbox"/> -3 | 4 <input type="checkbox"/> 2 | 0 <input type="checkbox"/> 5 | 0 <input type="checkbox"/> -1 |
| 4. -4 <input type="checkbox"/> -2 | -8 <input type="checkbox"/> 0 | 4 <input type="checkbox"/> -4 | -1 <input type="checkbox"/> -7 |
| 5. -6 <input type="checkbox"/> 1 | 2 <input type="checkbox"/> -6 | -5 <input type="checkbox"/> 0 | -7 <input type="checkbox"/> -8 |

List each set of integers in order from least to greatest.

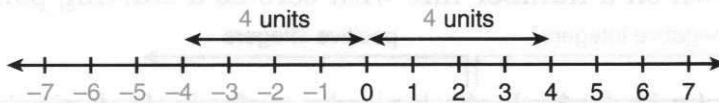
- | | |
|-----------------------------|-------------------------|
| a | b |
| 6. $4, 0, -2, -1$ _____ | $-6, -1, 1, -5$ _____ |
| 7. $1, 0, -1, -7, -3$ _____ | $-2, 2, 0, -3, 3$ _____ |

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Absolute Value

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The **absolute value** of a number is the distance that number is from zero on the number line. The absolute value of a number is always positive.



Say: The absolute value of -4 is 4 .

Write: $|-4| = 4$

Say: The absolute value of 4 is 4 .

Write: $|4| = 4$

Write the absolute value of each number.

a

b

c

1. $|-7| = \underline{\hspace{2cm}}$

$|14| = \underline{\hspace{2cm}}$

$|0| = \underline{\hspace{2cm}}$

2. $|25| = \underline{\hspace{2cm}}$

$|-16| = \underline{\hspace{2cm}}$

$|-33| = \underline{\hspace{2cm}}$

3. $|-78| = \underline{\hspace{2cm}}$

$|118| = \underline{\hspace{2cm}}$

$|-250| = \underline{\hspace{2cm}}$

Write $<$ or $>$ in each .

a

b

c

4. $|-6| \square |4|$

$|5| \square |-4|$

$|9| \square |-13|$

5. $|0| \square |-5|$

$|-6| \square |-3|$

$|11| \square |15|$

6. $|-25| \square |-23|$

$|-10| \square |0|$

$|-7| \square |-9|$

7. $|35| \square |47|$

$|55| \square |-45|$

$|-34| \square |37|$

8. $|-84| \square |-81|$

$|103| \square |-98|$

$|-138| \square |-157|$

List in order from least to greatest.

a

b

9. $-5, 7, |-9|, 0$ _____

$|-3|, -8, 5, |-7|$ _____

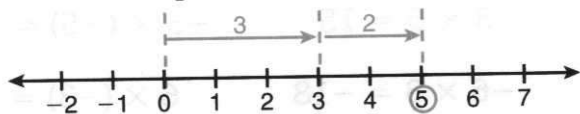
10. $0, |5|, -7, |-6|$ _____

$-11, 10, |-9|, 11$ _____

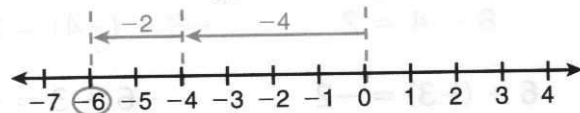
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Adding and Subtracting Integers

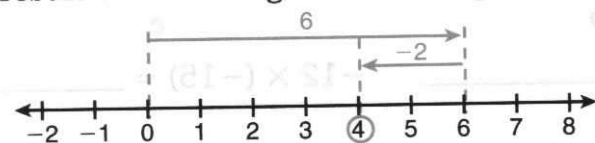
The sum of two positive integers is a **positive** integer. $3 + 2 = 5$



The sum of two negative integers is a **negative** integer. $-4 + (-2) = -6$



To add integers with different signs, **subtract** their absolute values. Give the result the same sign as the integer with the greatest absolute value. $6 + (-2) = 4$



To subtract an integer, **add** its opposite.
The subtraction problem $-8 - 3 = -11$ can be rewritten as the addition problem $-8 + (-3) = -11$. -3 is the opposite of 3.

Add.

- | | a | b | c | d |
|----|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 1. | $7 + (-3) = \underline{4}$ | $5 + 3 = \underline{\quad}$ | $-9 + 4 = \underline{\quad}$ | $-6 + (-2) = \underline{\quad}$ |
| 2. | $-12 + 9 = \underline{\quad}$ | $-4 + (-6) = \underline{\quad}$ | $3 + 18 = \underline{\quad}$ | $3 + (-9) = \underline{\quad}$ |
| 3. | $-1 + (-6) = \underline{\quad}$ | $12 + 14 = \underline{\quad}$ | $8 + (-6) = \underline{\quad}$ | $-4 + 8 = \underline{\quad}$ |
| 4. | $-12 + 0 = \underline{\quad}$ | $-14 + (-2) = \underline{\quad}$ | $0 + (-1) = \underline{\quad}$ | $14 + (-14) = \underline{\quad}$ |
| 5. | $68 + (-42) = \underline{\quad}$ | $-97 + 38 = \underline{\quad}$ | $-16 + (-16) = \underline{\quad}$ | $48 + 52 = \underline{\quad}$ |

Subtract.

- | | | | | |
|-----|---------------------------------|----------------------------------|----------------------------------|---------------------------------|
| 6. | $8 - (-4) = \underline{12}$ | $10 - 6 = \underline{\quad}$ | $-8 - 5 = \underline{\quad}$ | $9 - (-6) = \underline{\quad}$ |
| 7. | $21 - 15 = \underline{\quad}$ | $18 - (-9) = \underline{\quad}$ | $10 - (-5) = \underline{\quad}$ | $-6 - (-5) = \underline{\quad}$ |
| 8. | $-4 - 9 = \underline{\quad}$ | $-8 - 6 = \underline{\quad}$ | $-12 - (-7) = \underline{\quad}$ | $5 - 11 = \underline{\quad}$ |
| 9. | $16 - 31 = \underline{\quad}$ | $-8 - 12 = \underline{\quad}$ | $-4 - 0 = \underline{\quad}$ | $-5 - 2 = \underline{\quad}$ |
| 10. | $2 - (-15) = \underline{\quad}$ | $-8 - (-18) = \underline{\quad}$ | $9 - (-17) = \underline{\quad}$ | $0 - 8 = \underline{\quad}$ |

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Multiplying and Dividing Integers

The product of two integers with **like** signs is **positive**.

$$3 \times 5 = 15 \qquad -3 \times (-5) = 15$$

The product of two integers with **unlike** signs is **negative**.

$$-6 \times 3 = -18 \qquad 6 \times (-3) = -18$$

The quotient of two integers with **like** signs is **positive**.

$$8 \div 4 = 2 \qquad -8 \div (-4) = 2$$

The quotient of two integers with **unlike** signs is **negative**.

$$6 \div (-3) = -2 \qquad -6 \div 3 = -2$$

State whether each answer is positive or negative.

a

b

c

1. $18 \times (-7) =$ negative $6 \times (-48) =$ _____ $-12 \times (-15) =$ _____

2. $-18 \div (-9) =$ _____ $54 \div (-6) =$ _____ $-56 \div 7 =$ _____

Multiply or divide.

a

b

c

3. $8 \times (-9) =$ -72 $-9 \times (-6) =$ _____ $-12 \times 8 =$ _____

4. $-56 \div (-7) =$ _____ $-54 \div 9 =$ _____ $96 \div (-8) =$ _____

5. $11 \times (-8) =$ _____ $72 \div 9 =$ _____ $10 \times (-10) =$ _____

6. $63 \div (-9) =$ _____ $-35 \div 5 =$ _____ $126 \times (-1) =$ _____

7. $7 \times (-7) =$ _____ $235 \div (-1) =$ _____ $-634 \times 0 =$ _____

8. $-64 \div (-8) =$ _____ $0 \div (-147) =$ _____ $-12 \times (-12) =$ _____

Write *true* or *false*. If false, state the reason.

9. The product of two positive integers is never negative. _____

10. The product of two negative integers is always negative. _____

11. The quotient of two negative integers is always positive. _____