Integer Addition and Subtraction

Integer addition and subtraction: Models and calculations

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QUICK REVIEW

Adding same signs: add sizes and keep the sign, so $-4+(-3)=-7$. Adding opposite signs: subtract sizes and keep the sign of the larger size, so $-8+5=-3$. Subtracting means adding the opposite: $3-(-4)=3+4=7$.

Worked example

Find $-6+9$.

1. Write as addition: $(-6)+(9)=(-6)+(9)$.
2. Opposite signs: subtract sizes $|6-9|=3$; the larger size is positive.
3. The result is 3; check $3-(9)=-6$.
Answer: 3.

Practice Problems

Show your thinking.

1. Compute $-8+3$.

2. Use signed counters to model $7+(-12)$.

3. Compute $-5+(-9)$.

4. Explain and calculate $4-(-6)$.

5. The temperature is $-3°$C and falls 8 degrees. Find the new temperature.

6. Compute $-7-(-2)$ and check.

7. Compute $-14+9$.

8. Explain and evaluate $-2-(-5)$.

Answer Key

1. -5.
2. -5.
3. -14.
4. 10.
5. -11 degrees Celsius.
6. -5.
7. -5.
8. 3.

Step-by-Step Solutions

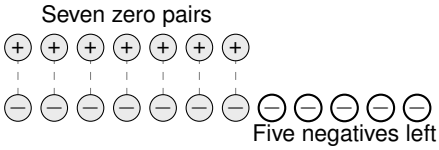
Follow each calculation, then check your own work.

Problem 1

1. Write as addition: $(-8) + (3) = (-8) + (3)$.
2. Opposite signs: subtract sizes $|8 - 3| = 5$; the larger size is negative.
3. The result is -5; check $-5 - (3) = -8$.

Problem 2

1. Draw 7 positive counters and 12 negative counters.
2. Pair every positive counter with one negative counter. Each pair has value $1 + (-1) = 0$.
3. Cancel the seven pairs. $12 - 7 = 5$ negative counters remain, giving -5.



Problem 3

1. Write as addition: $(-5) + (-9) = (-5) + (-9)$.
2. Same signs: add sizes $5 + 9 = 14$ and keep the negative sign.
3. The result is -14; check $-14 - (-9) = -5$.

Problem 4

1. Write as addition: $(4) - (-6) = (4) + (6)$.
2. Same signs: add sizes $4 + 6 = 10$ and keep the positive sign.
3. The result is 10; check $10 - (6) = 4$.

Problem 5

1. Write as addition: $(-3) - (8) = (-3) + (-8)$.
2. Same signs: add sizes $3 + 8 = 11$ and keep the negative sign.
3. The result is -11 degrees Celsius; check $-11 - (-8) = -3$.

Problem 6

1. Write as addition: $(-7) - (-2) = (-7) + (2)$.
2. Opposite signs: subtract sizes $|7 - 2| = 5$; the larger size is negative.
3. The result is -5; check $-5 - (2) = -7$.

Problem 7

1. Write as addition: $(-14) + (9) = (-14) + (9)$.
2. Opposite signs: subtract sizes $|14 - 9| = 5$; the larger size is negative.
3. The result is -5; check $-5 - (9) = -14$.

Problem 8

1. Write as addition: $(-2) - (-5) = (-2) + (5)$.
2. Opposite signs: subtract sizes $|2 - 5| = 3$; the larger size is positive.
3. The result is 3; check $3 - (5) = -2$.

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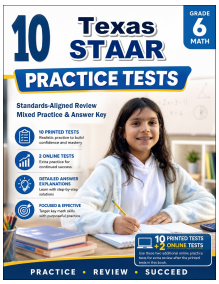

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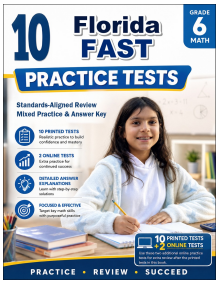

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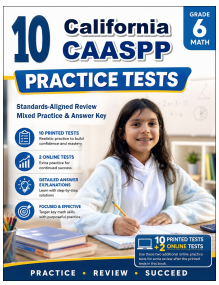

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