Integer Addition and Subtraction

Integer addition and subtraction: Applications and decisions

Name _____ **Date** _____ **Score** _____ / 8

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. A balance is -15 dollars and a deposit is 22 dollars. Find new balance.

2. A game score is 6 points, then loses 14. Find the score.

3. Temperature changes from $-4°$C to $-9°$C. Find signed change, final minus initial.

4. An elevator rises from floor -11 to floor 2. Find its signed upward change.

5. Find the number which, when added to -7, gives -18.

6. A student says a 16-point gain from -10 gives -26. Correct the final score.

7. A diver at -7 m rises 12 m. Find final elevation.

8. A game starts at -4 and loses 15 points. Write a signed equation for its final score.

Answer Key

1. 7 dollars.
2. -8 points.
3. -5 degrees Celsius.
4. $+13$ floors (upward).
5. $x = -11$.
6. 6 points.
7. 5 meters.
8. -19 points.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Write as addition: $(-15) + (22) = (-15) + (22)$.
2. Opposite signs: subtract sizes $|15 - 22| = 7$; the larger size is positive.
3. The result is 7 dollars; check $7 - (22) = -15$.

Problem 2

1. Write as addition: $(6) - (14) = (6) + (-14)$.
2. Opposite signs: subtract sizes $|6 - 14| = 8$; the larger size is negative.
3. The result is -8 points; check $-8 - (-14) = 6$.

Problem 3

1. Write as addition: $(-9) - (-4) = (-9) + (4)$.
2. Opposite signs: subtract sizes $|9 - 4| = 5$; the larger size is negative.
3. The result is -5 degrees Celsius; check $-5 - (4) = -9$.

Problem 4

1. Write as addition: $(2) - (-11) = (2) + (11)$.
2. Same signs: add sizes $2 + 11 = 13$ and keep the positive sign.
3. The positive change $+13$ floors means upward. Check $-11 + 13 = 2$.

Problem 5

1. The unknown satisfies $x + (-7) = -18$.
2. Subtract the known addend from both sides: $x = -18 - (-7) = -11$.
3. Check: $-11 + (-7) = -18$.

Problem 6

1. Write as addition: $(-10) + (16) = (-10) + (16)$.
2. Opposite signs: subtract sizes $|10 - 16| = 6$; the larger size is positive.
3. The result is 6 points; check $6 - (16) = -10$.

Problem 7

1. Write as addition: $(-7) + (12) = (-7) + (12)$.
2. Opposite signs: subtract sizes $|7 - 12| = 5$; the larger size is positive.
3. The result is 5 meters; check $5 - (12) = -7$.

Problem 8

1. Write as addition: $(-4) - (15) = (-4) + (-15)$.
2. Same signs: add sizes $4 + 15 = 19$ and keep the negative sign.
3. The result is -19 points; check $-19 - (-15) = -4$.

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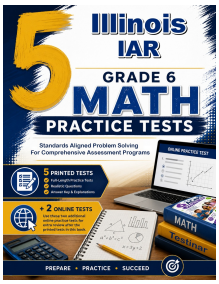

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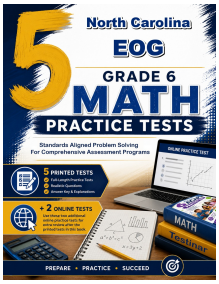

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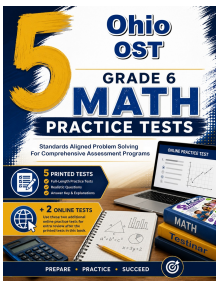

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