Compute with Integers in Context

Computing with integers in context: Applications and decisions

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Choose signs from the context, then keep units through all operations. A balance of -10 dollars plus 3 deposits of 6 dollars is $-10 + 3 \times 6 = 8$ dollars. A -24-m change over 6 minutes is $-24/6 = -4$ m/minute. Distinguish a signed change from a nonnegative distance.

Worked example

A diver starts at -5 m and descends 3 m/min for 4 min. Find final elevation.

1. Total change $= 4 \times (-3) = -12$ m.
2. Final elevation $= -5 + (-12) = -17$ m.
Answer: -17 m.

Practice Problems

Show your thinking.

1. A game gives 7 points per win and -4 per loss. Find the change for 3 wins and 5 losses.

2. A diver starts at -6 m, descends 5 m/min for 3 min, then rises 8 m. Find final elevation.

3. A balance is -25 dollars. Four equal deposits of 9 dollars are made. Find final balance.

4. Temperature changes from -12 to $6°$C in 3 equal hours. Find average signed hourly change.

5. A robot moves 4 units west on each of 5 moves, then 13 east. East is positive. Find net displacement.

6. A student says 2 losses of 8 points and one gain of 5 gives 21. Repair the signed total.

Answer Key

1. 1 point.
2. -13 m.
3. 11 dollars.
4. $+6$ degrees/hour.
5. -7 units.
6. -11 points.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Wins contribute $3 \times 7 = 21$ points; losses $5(-4) = -20$.
2. Total $= 21 - 20 = 1$ point.

Problem 2

1. After descent: $-6 + 3(-5) = -21$ m.
2. After rise: $-21 + 8 = -13$ m.

Problem 3

1. Deposits total $4 \times 9 = 36$ dollars.
2. Final balance $= -25 + 36 = 11$ dollars.

Problem 4

1. Total change $= 6 - (-12) = 18$ degrees.
2. Hourly change $= 18/3 = 6$ degrees/hour.

Problem 5

1. Westward total $= 5(-4) = -20$ units.
2. Net $= -20 + 13 = -7$ units, so it ends 7 units west of its start.

Problem 6

1. Two losses contribute $2(-8) = -16$ points.
2. Including the gain: $-16 + 5 = -11$ points.

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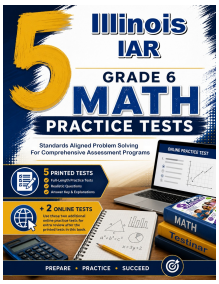

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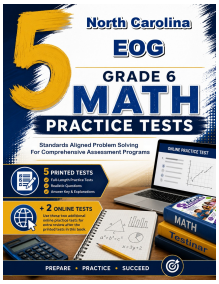

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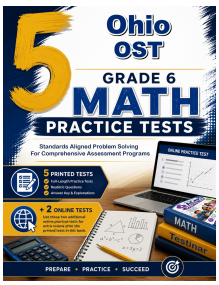

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