You will find these and additional problems for the AMC 10 and AMC 12 on AMC's web site: http://www.unl.edu/amc, available from the 2004 AMC 10/12 Teacher Manual directory, (http://www.unl.edu/amc/d-publication/d1-pubarchive/2003-4pub/04tm12/04amc1012tm.html) or from our Problems page archives (http://www.unl.edu/amc/a-activities/a7-problems/problem81012archive.html).

- What is the value of

$$(3x-2)(4x+1)-(3x-2)4x+1$$

when $x=4$?

(A) 0 **(B)** 1 **(C)** 10 **(D)** 11 **(E)** 12

2002 AMC 10 B, Number #4;
2002 AMC 12 B, Number #2—
"Factor to make easier"

- **Solution (D)** Since

$$\begin{aligned}(3x-2)(4x+1)-(3x-2)4x+1 &= (3x-2)(4x+1-4x)+1\\ &= (3x-2)\cdot 1+1 = 3x-1,\end{aligned}$$

when $x=4$ we have the value $3\cdot 4-1=11$.

Difficulty: Easy

NCTM Standard: Algebra Standard for Grades 9–12: Understand the meaning of equivalent forms of expressions.

Mathworld.com Classification:
Algebra > Polynomials > Polynomial;
Algebra > Polynomials > Polynomial Factorization